

Entered at the Post Office at Chicago, Ill., for transmission through the mails at second-class rates.

A MONTHLY JOURNAL DEVOTED TO THE ELEVATOR AND GRAIN INTERESTS.

PUBLISHED BY
Mitchell Bros. Company.
(INCORPORATED.)

Vol. II.

CHICAGO, ILLINOIS, DECEMBER 15, 1883.

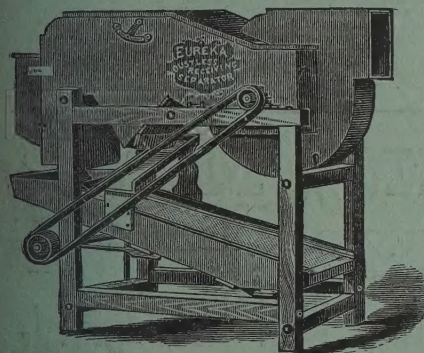
No. 6.

SUBSCRIPTION PRICE,
ONE DOLLAR PER ANNUM.

HOWES & EWELL, SILVER CREEK, N. Y.,

—SOLE MANUFACTURERS OF THE—

Eureka Receiving and Warehouse Separators,
BOTH ENTIRELY DUSTLESS.



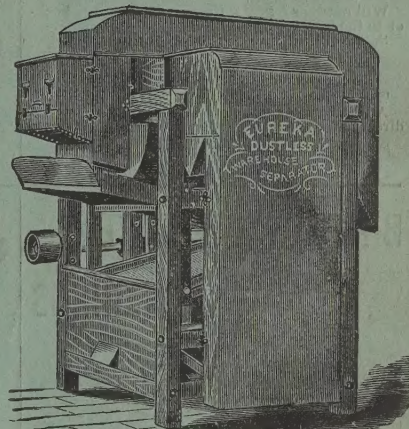
Receiving Separator.

—WITH CAPACITIES RANGING FROM—

100 TO 1,000 BUSHELS PER HOUR

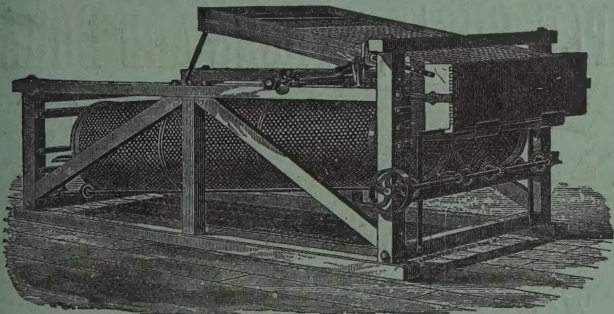
For Further Information Send for Special Circulars

—ADDRESS AS ABOVE.—



Warehouse Separator.

COCKLE SEPARATOR MFG. CO., MILWAUKEE, WISCONSIN.
—MANUFACTURERS OF—



(DIFFERENT SIZES BUILT.)

Kurth's Patent Improved Cockle Separator.

Combines Large Capacity with Good Quality of Work. Especially Adapted for

ELEVATORS AND WAREHOUSES.

Also Built in Combination with Richardson's

DUSTLESS OAT SEPARATOR!

—Also Manufacturers of—

BEARDSLEE'S PATENT GRAIN CLEANER,

Which will clean the wheat to suit any purpose, for Elevators or Warehouses.

LOW PRICES FOR EXCELLENT MACHINES.

Address us for Illustrated Catalogue and Circulars.

Manufacturers of Perforated Metals for all Purposes. Sold at Lowest Prices.

FOR NEW ROOFS.

FOR OLD ROOFS.

RELIABLE ROOFING

Ready for use; **practically fire-proof**; **cheap** and **durable**; **anybody** can apply on steep or flat surface. **Live agent** wanted in **every town**, and liberal inducements offered. "How to save re-shingling—stop leaks effectually and cheaply in roofs of all kinds,"—a **100-page Book free** to any one stating where they saw this notice. **Write to-day!**

OLD ROOFS.

Protect your buildings by using Glines' Slate Roofing Paint, which **rethters cracks** in winter, nor **runs** in summer. Old shingle roofs can be painted, looking **much better** and **lasting longer** than new shingles without the paint, for **one-fourth** the cost of re-shingling. On **decayed** shingles it fills up the holes and pores, and gives a new substantial roof, that lasts for years. **Curled** or **warped** shingles it brings to their place and **keeps** them there. This Slate Paint requires no heating or thinning, is applied with a brush, and very ornamental. Be sure you obtain our **genuine** article, which is **chocolate** color, and is to all intents and purposes **slate**. On

TIN OR IRON ROOFS.

the **red** color is often preferred, and is acknowledged the **best** paint in the market for durability on metal surfaces. It has a heavy body, but is easily applied; expands by heat, contracts by cold; is a slow drier, and never **cracks** nor **scales**. One coat is equal to **four** of any other paint. Buildings covered with tar-felt can be made water-tight at a **small** expense, and preserved for years. **Correspondence Invited.**

NEW YORK SLATE ROOFING CO., 127 Church St., Philadelphia.

NEW ROOFS.

Rubber Roofing, being very elastic, is **strongly** recommended by Architects, Corporations, Public Institutions, builders and leading men in all sections. Can be laid **over** old shingles, felt, plastic and mastic roofs with **positive satisfaction**. Will not draw in hot weather, sheds water readily, and is a **strictly reliable** article.

NO TAR OR CRAVEL USED.

We mail such **simple** directions for applying that **any one** can **roof his own house**.

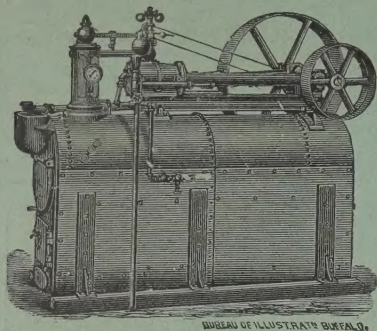
Mills, foundries and factories a **specialty**. Materials complete for a **new** steep or flat roof of **Glins' Rubber Roofing** costs but about **half** the price of re-shingling. For private houses, barns and buildings of **all** descriptions it is far **superior** to any other roofing in the world for convenience in laying, and combines the **ornamental appearance**, **durability** and **fire-proof** qualities of tin, at **one-third** the cost.

MARBLEIZED SLATE MANTELS.

Cheap as wood; beautiful colors; newest styles. Send stamp for **Book of Designs**. We can save you money.



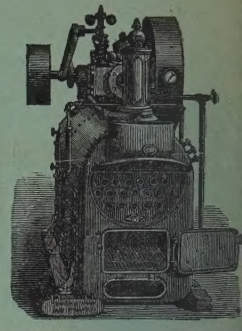
Buy the **CORRUGATED BELT BOLT**
The best Elevator Bolt made
MANUFACTURED ONLY BY
THORNBURGH & GLESSNER,
Mill and Elevator Supplies.
CHICAGO, ILL.



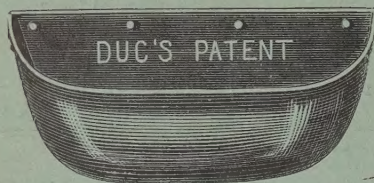
SKINNER ELEVATOR ENGINES!

Over 300 in Use in Grain Elevators in the West.
BOTH STATIONARY AND PORTABLE.

CORRESPONDENCE AND ORDERS SOLICITED!
SKINNER & WOOD, - - ERIE, PA.



THE "DUC" Elevator Bucket.



Always First Premium in fair competitive Trials.

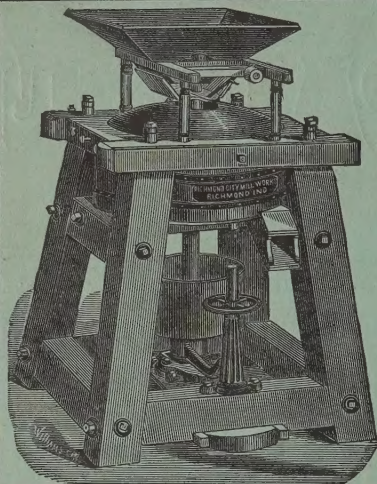
EXTRA STRONG
AND
VERY DURABLE.

No corners to catch.
No seams to burst.
Will outwear half a dozen of any other bucket in the market.
Satisfaction guaranteed, or money refunded.

50,000 ON HAND.

Telegraphic orders filled.
All Mill Furnishing Houses furnish them; or send direct to the sole manufacturer,

T. F. ROWLAND,
Brooklyn, N. Y.



RICHMOND CITY MILL WORKS

RICHMOND, INDIANA,

Manufacturers of

IMPROVED MILLING MACHINERY

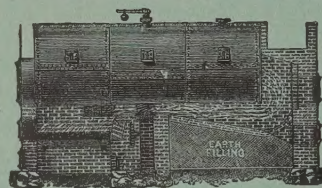
PORTABLE MILLS

Of Every Description,

THE BEST MADE!

— X —

Write for Description and Prices.

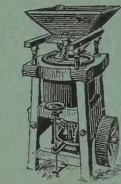


JARVIS PATENT FURNACE. FOR SETTING STEAM BOILERS.

Economy of fuel, with increased capacity of steam power. Like the Sieman's Process, it utilizes the waste gases with hot air on top of the fire. Burns all kinds of wet hops, sawdust, logwood chips, slack coal, etc. Send for circular.

POND ENGINEERING CO.,
Western Agents.
709 Market St., St. Louis. 130 W. 2d St., Cincinnati.
88 Market St., Chicago.

STEVENS' FRENCH BUHR



FEED MILLS.
The cheapest and best mills in the world.
Prices \$30 and upwards, subject to cash discount. Send for circulars to
A. W. STEVENS & SON,
Auburn, N. Y.
Mention this paper.



BRADLEY'S INSULATED AIR COVERINGS



For Boilers, Steam, Gas and Water Pipes,

Prevents Condensation of Steam and Radiation of Heat.

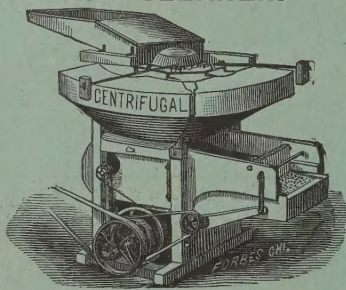
Awarded the **Silver Medal** at the late National Exposition of Railway Appliances, being the highest and only prize given.

SHIELDS & BROWN,

78 and 80 Lake St., CHICAGO.

Send for Illustrated Descriptive Circular and name this paper.

SELF-FEEDING CORN SHELLER AND CLEANER.



PRACTICAL, DURABLE & CHEAP.

For Illustrated Price List address

VANT, COOK & PARKHURST, - CHICAGO.

Kerr Murray Mfg. Co., Ft. Wayne, Ind.

MANUFACTURERS OF

Grain Elevator and Mill Machinery,

Wrought Iron Tanks and Cast Boats Complete. Steam Engines and Boilers, Shafting, Pulleys, Etc.

IMPROVED STEAM SHOVEL MACHINERY.
ESTIMATES FURNISHED ON APPLICATION.

SIMPLE, CHEAP, STRONG AND DURABLE.



HARRISON CONVEYOR.

Patented June 13, 1882.

ALL WROUGHT
IRON!

GREAT WESTERN MFG. CO., LEAVENWORTH, KANSAS.

Steam Engines,

PULLEYS,

SHAFTING,

GEARING,

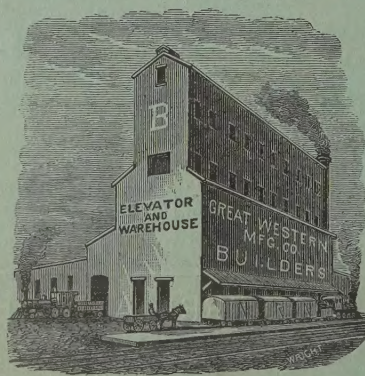
FLOUR MILL

—AND—

**ELEVATOR
MACHINERY**

—OF—

Every Description.



**CORN
SHELLERS,
SEPARATORS,**

SCALES,

BELTING,

**Elevator
Cups,**

BOLTING CLOTH,

**STEAM PUMPS,
PIPE AND FITTINGS.**

We Carry the Largest Stock of Mill and Elevator Supplies to be found West of the Mississippi River.

IS INDISPENSABLE

—FOR—

Mills, Elevators,
Warehouses,
Breweries,
Malt Houses,
Distilleries,
Glucose Works,
Starch Factories,
Saw Mills,
Furniture Factories,
Brick Yards,
Coal Mines,
Foundries,
Etc., Etc.

IT DOES
CLEAN WORK!

—AND ALLOWS NO—

MIXING OF GRAIN!

MANUFACTURED BY THE

HARRISON CONVEYOR CO.,

16 West Lake Street,

CHICAGO, - - ILL.

IT CARRIES

Grain,
Seeds,
Ear Corn,
Wet or Dry Malt,
Coal,
Sand,
Saw Dust,
Tan Bark,
Stone,
Cinders,
Clay,
Bricks,
Boxes,
Blocks,
Packages,
Etc., Etc.

SEND FOR CIRCULAR AND PRICE LIST.



A MONTHLY JOURNAL DEVOTED TO THE ELEVATOR AND GRAIN INTERESTS.

PUBLISHED BY
Mitchell Bros. Company.
(INCORPORATED.)

Vol. II.

CHICAGO, ILLINOIS, DECEMBER 15, 1883.

No. 6.

SUBSCRIPTION PRICE,
ONE DOLLAR PER ANNUM

THE "BIG FOUR ELEVATOR," CINCINNATI, O.

While not ranking with Chicago, St. Louis, and some other Western cities as a grain center, Cincinnati, nevertheless, has a very large grain trade, with excellent facilities for its accommodation. We illustrate on this page the "Big Four Elevator," which is the latest addition to its list of grain handling concerns, having been formally opened a little over a year ago. It stands at the intersection of Harriet street and the C. I. St. L. & C. and the M. & C. Railroads, in a very convenient location for receiving grain from the territory west and northwest of the city. Work was commenced on the structure in July, 1882, and it was finished on Nov. 1 of the same year. It was planned by Mr. J. A. McLennan, of Chicago, who has built some of the largest and finest houses in the country. Mr. McLennan superintended the work, with Mr. Robt. Rutherford as foreman. Mr. Geo. Tozzer, purchasing agent for the "Big Four," purchased all the material that entered into the construction of the building. The ground on which it is situated was of such a nature that it was found necessary to drive piles upon which to construct the masonry. Twenty-four hundred piles, fourteen inches in diameter and thirty feet long, were driven down to within a few inches of the butt ends by a steam-hammer, and on these were built the piers of masonry, one hundred and thirty-six in number. There are about 11,000 cubic feet of masonry under the house. The elevator is 93 feet wide, 200 feet long, and 142 feet high

from the ground to the eaves. The smoke-stack is a symmetrical cylinder of brick, 145 feet high, and is provided with the latest devices for ventilation and perfect draught. The building is almost entirely fire-proof,

to allow of the elevator settling, which it will do in a period of four or five years. About 3,000,000 feet of lumber, nine carloads of nails, and 1,000,000 bricks were used in the construction. There are ten elevator chutes,

five on each side of the building, and each bucket in the boxes will hold about fourteen pounds of grain. There are 110 bins, ranging in capacity from 5,000 to 7,000 bushels. There are five pocket bins, each divided into four parts, to contain different kinds of grain. The total capacity of the bins is about 800,000 bushels, exclusive of the floor space. The total cost was about \$200,000, and there are about sixty-five tons of various kinds of machinery in the building.

The engine is a vertical, direct acting automatic cut-off engine, with cylinder of 42-inch bore and 42-inch stroke. The fly-wheel pulley is fourteen feet in diameter with a 43-inch face, and is made in four parts. The crank-shaft is 14 inches in diameter and 18 feet 6 inches long. The engine was built by the Fishkill Landing Machine Co., at Fishkill-on-the-Hudson, N. Y., and is in every way creditable to the well-established reputation of this firm. The boilers, three in number, are 60 inches in diameter and 16 feet long, and were supplied by Jno. McGregor & Sons, Detroit, Mich. The elevator is also provided with a duplex fire-pump equal to four fire-engines, for throwing water through five-inch pipe, and thence through three-inch hose and brass nozzles to any part of the building at a sec-



THE "BIG FOUR ELEVATOR," CINCINNATI, OHIO.

being surrounded by a brick wall built as high as the eaves, and firmly fastened by iron anchors. These anchors have a play of about twelve inches perpendicular,

and's warning. The main driving belt, which is of rubber, is 287 feet long, and 40 inches wide. It is one of the largest in the country, and together with the other

belting in the house was supplied by the Boston Belting Co., of Boston, Mass. The elevator buckets for the structure were furnished by the Webster & Comstock Mfg. Co. of this city, and the general machinery by the Union Foundry and Pullman Car Wheel Works, also of Chicago.

The cupola of the elevator is externally fire-proof, being roofed and sheathed with tin, and every precaution has been adopted against any possible loss by fire to the building or its contents.

The ordinary capacity of the elevator is about 200 cars per day, but it can be increased to 300 in cases of emergency. Cars run through the middle of the elevator, and chutes are built on the south side for loading and unloading wagons.

IMPROVING OUR WATERWAYS.

The Union League Club of Chicago gave a complimentary dinner to the Illinois Congressional Delegation on Nov. 23. One of the principal subjects that permeated the toasts and post-prandial speeches was the Hennepin Canal and its commercial relations. Senator Logan, in response to the toast, "The Mississippi Valley," spoke of its unlimited resources, unsurpassed by any in the world in its possibilities of production and population; drained by one of the great arteries of nature, upon which the unfettered commerce of the Northwest should float unmolested from its headwaters to the Gulf. All the railroads that could be built would not be sufficient for its commerce. Why should any one object to making it navigable at all times, and to constructing a ship-canal to connect it with Chicago, that there might be competition with the railroads? The Hennepin Canal would be an immense benefit to commerce, and if Chicago were drained as an accident, or if the deepening of the Mississippi prevented overflows, and thereby preserved the property of the land-owners along its banks, why should anybody object? The Senator thought that the Mississippi River improvement should be made a separate proposition, and that the Hennepin Canal should be associated with it as part of the great Western project.

Gen. Henderson said that the Illinois and Michigan Canal had been made a national improvement, in which the whole country were interested. The people were interested in cheap transportation, and there were no such means of regulating freights as were furnished by the waterways. He did not believe that it was for the interests of the country for a few men like the Goulds and Vanderbilts to pile up all the money for their own benefit.

Ex-Governor Oglesby said that a good deal of honest hard work had been done for the Hennepin Canal, but it wasn't finished. For every \$1,000,000 the sea-board states would give to it, the Western states would give \$4,000,000 to build vessels of war. The strength of the Republic lay in her mountains, valleys, and prairies. The danger on the sea-coast was not imminent; no nation wished to attack us. We could have, however, both a navy and the canal. What were a few millions spent to link the great states of the Northwest together, and let its commerce float from the bosom of the Mississippi to the bosom of Lake Michigan, and to every other bosom between Chicago and Europe?

THE GRANARY OF THE WORLD.

The United States may be fairly termed the granary of the world. Other regions are beginning to compete with this country in food products, but hungry mouths everywhere are filled with bread and provisions from America, the wheat export of India and Australia not sufficing to make paste enough to fortify the cotton fabrics of British looms. The export value of breadstuffs in October, 1883, from all parts of the United States, according to the Treasury statement, was \$14,651,530, contrasted with \$15,362,682 in October, 1882. This exhibits a decline of about three-quarters of a million dollars on the month, which is not very considerable, seeing that at the same period last year exports were pushed, while this season there is a great deal of hoarding for higher prices. This holding policy accounts also for the decreased exports in the ten months ended Oct. 31, contrasted with 1882. Thus:

Breadstuffs export, 1882.....	\$150,300,581
Breadstuffs export, 1883.....	145,082,034
Decrease.....	\$5,218,547

The total, however, is satisfactory enough, and will not disappoint those familiar with the condition of the

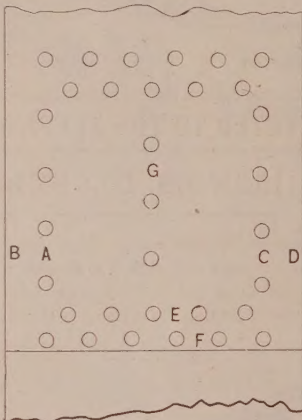
grain trade of the country. Last season's crop will exhibit as favorable a total when it is cleaned up and reduced to money, as that of 1882. The leading export points of the country are:

New York, ten months.....	\$56,796,064
Boston, ten months.....	13,105,226
Baltimore, ten months.....	23,998,880
San Francisco, ten months.....	23,228,951
Philadelphia, ten months.....	9,619,235
New Orleans ten months.....	7,739,507

It is noticeable that whereas the ports of New York and San Francisco show a marked decrease in the export values of breadstuffs for the period under review, the other ports enumerated in the foregoing statements show a decided increase. This may be partly explained by transportation facilities East interfering with New York. In the first ten months of 1882 the breadstuffs export from San Francisco was \$29,071,463; in 1883 it was \$23,228,951. New York decreased in the same period from \$63,264,471 in 1882 to \$56,769,064 in 1883.

RIVETING THE JOINTS OF A BELT.

From the *Saw-mill Gazette* we take the following method of arranging the rivets on a quick running belt, shown in the annexed cut. The rows *A* and *C* leave about $\frac{1}{4}$ inch of leather at the edges, row *F* is about $\frac{1}{4}$



inch from the edge of the lap, and row *E* $\frac{3}{4}$ of an inch from row *F*, in a belt say 4 inches wide. The splice should be tapered and cemented as well as riveted, the belt having previously been well stretched and softened by an application of blood-warm castor oil.

CANADIAN BARLEY.

A correspondent of the *Toronto Globe* at Napanee, Ont., one of the most important centers of the barley trade of that province, presents some interesting facts as to the production of and traffic in this cereal, and the effects upon it of the "National Policy" of protection introduced by Sir John Macdonald about five years ago. Napanee is the chief town of Lennox and Addington counties, which, especially the former, are almost exclusively engaged agriculturally in the cultivation of barley, and from which the celebrated Bay of Quinte product obtains its name and fame. The great barley district of the province lies along the north shore of Lake Ontario, within forty miles of the coast, producing four-ninths of the total crop. The present crop is estimated at about 18,700,000 bushels, or only 2,000,000 short of the entire wheat product. In 1882 the ratio and amount of product were greater, being some 20,300,000 bushels of barley, against 40,000,000 bushels of wheat. The value of the present barley crop, even at the low ruling prices, is estimated at not less than \$11,000,000. The favorable qualities of the soil, much less exhausted by this cereal than by wheat, and yielding more steadily, giving a month's earlier harvest, have made this the crop in this section, to the exclusion of wheat, because more certain and remunerative.

When the "N. P." was broached it was claimed that protection against American imports would foster the home manufacture of malt and improve the price of the grain. But as a matter of fact this prediction has failed. The province is an exporter of barley, and its grades and prices are actually fixed at Oswego, N. Y., for the trade with the great malting houses at Albany and New York City. The grades there, made annually, are usually: Bright No. 1, No. 1, No. 2 and No. 3, based on color and specific weight. The standard weight is forty-eight pounds per Winchester bushel, with a range of about four pounds, only half that of wheat.

The prices of this grain, even under diminished acre-

age and production, is this year 60 cents as against 70 to 80 cents per bushel last year, a difference not warranted by the difference in quality. In the fall of 1878, when these grand promises as to the results of the "N. P." were made, barley sold as high as \$1.15 in the Napanee market, a price that at no time since the tariff imposition has been approached. In 1881, when trade was specially active, the prices ranged only from 86 to 92 cents, while the general average since has been much lower. The Canadian malting interests have been, it is said, also greatly injured, causing lower prices, and a large decrease of exportation. This protective policy thus appears to the Canadian barley grower to have been ruinous, reducing prices at a period of greatly decreased production, greater cost of machinery, and largely increased competition.

"OLD HUTCH."

A large number of those who have attained the position of magnates of the Chicago Board of Trade sprang from conditions of poverty where their environments, it would seem, furnished educational facilities promising almost any result rather than that of a successful business career. A striking illustration of this class is Mr. B. P. Hutchinson, familiarly styled "Old Hutch," the main stay in the Chicago Packing House Co. and owner of a bank. A gossip sketch of the *Times* represents him as coming here in 1859, at the age of thirty, "all legs and nose, with the complexion of a liver sausage, and weighing only one hundred pounds." Born at Danvers, Mass., poor as the rocky soil he worked upon as a bound boy, he took his leave from there without any formalities, and went to Lynn, the center of the shoe manufacture for which Massachusetts was then famous. In twelve years he had learned the trade, become a manufacturer, and by close cutting of his leather undersold his rivals and became "rich" for that day, having cleared \$50,000. The hard times of 1857 drove him away to seek new ventures. He went to Vermont, to Canada, and then to Milwaukee, where he "dabbled in grain." But the place was too small, and with his Lynn fortune still saved, he came to Chicago as above related.

A quarter of a century has made some difference in Chicago values. "Old Hutch" at that time bought a ticket on the Board of Trade for five dollars, and stood on an equality in capital among the grain traders of that period. He was a man without pride, and to casual observers devoid of all business principles in his speculative dealings, being alternately a bull or a bear on the same day. He had little persistency or patience and made no followings, but was shrewd and enthusiastic in the direction of his immediate expectations. He ran some "corners," but they were brief, and "hurt nobody," lasting "over night," or a week perhaps, hardly ever two; such deals "tired him dreadfully," and he frantically hastened their close. The modern "corner" did not suit this Yankee shoemaker. He always kept his credit good, and his name was sufficient to make any paper current. He sometimes got caught; McGeoch is said to have relieved him at one time of \$300,000, and he has been caught by Armour and others. But he had a keen scent for the tricks and schemes of such speculators, and was seldom beaten by them.

It is said of Mr. Hutchinson that he never told a lie or practiced deception in his business. He is known as a warm-hearted, generous man, whose sympathies are quickly aroused. A tramp would ask him for a dollar and get it. "A hundred men in the Alley have been helped by him; when they were hungry, or when their families were in distress they never met with a refusal." When at times a heavy corner has been pressing some honorable firm to the wall, he has promptly volunteered the loan of \$100,000 or more to tide them over. In his successful management of his packing business he has, it is said, simply put in practice his Lynn training, and packed pork as he cut leather, stopping the waste. "Mr. Hutchinson is now fifty-five years old, straight as a man can be, without a gray hair, and worth \$3,000,000, perhaps more." His memory, which is remarkable, is unimpaired, and his literary tastes are shown in his recent readings of Thorau and Emerson, whose philosophy he appreciates and admires.

A farmer in Nebraska raises his spring wheat and oats together, after which he separates them. It is claimed that the chinch bug will not bother the grain raised in this way, and that it is larger and more uniform in size.

THE "PARKER" GAS ENGINE.

This gas engine has been in practical operation for the past eight months, and being put to very severe tests, both as to power, speed, and utility, has given excellent satisfaction. The principle of burning the explosive mixture in a rapid series of explosions during the power stroke is a very advantageous method. It has been demonstrated that a proper explosive mixture in the cylinder of a gas engine, when ignited, burns with great rapidity, the maximum of pressure rising as instantaneously. Now, when this charge is exploded under compression the greatest pressure occurs at a time when it can not be transmitted into useful effort, for the reason that the crank is on or very near the dead center. The piston is also nearly motionless at this instant, and the result is that the intense pressure loses heat by concussion and impact against the cylinder walls.

The principle of avoiding this loss in the "Parker" engine is to explode a small portion of the charge at the starting of the piston and the remaining portions in a rapid series, so as to produce a much greater pressure after the crank gains leverage upon the shaft. This method is effected by drawing into the cylinder the charge and forcing it into a separate explosion chamber controlled by the piston in its travel. The charge thus separated is ex-

ploded alone, while remaining in the chamber before ignition. Less cooling water is required, from the reason that the exploded charge in the chambers does not effect the bore of the cylinder so much where lubricants are required. The advantages will be readily observed, that by exploding the mixture in detail by a series of rapid explosions, causing an increased pressure upon the piston when the crank is in the most advantageous positions to transmit energy at its greatest leverage. Another very important feature in this engine is the minimum of friction. The continual friction by the slide-valve system

small dynamo is placed in any convenient place about the engine, usually as shown in the engraving. Its dimensions are small, not over a six-inch cube of space being required to operate the dynamo, a quarter-inch round belt from the crank-shaft being sufficient. The power required is insignificant, as the quarter-inch belt, very slack, gives it ample motion. The current is transmitted to the interior of the cylinder, where a brilliant flash occurs at the beginning of every power stroke. The flash is the result of breaking or interrupting the current. The operation is automatic, and as durable as any

of the working parts of a gas engine. A saving of from ten to twelve feet of gas per hour is claimed for this method, and this is no small item. All the obnoxious smells of gas and the products of hot combustion filling the rooms occupied by the engine are obviated by the dynamo system. The use of matches being entirely dispensed with, the dangers of fire are thereby reduced; the liability of the lights being extinguished cannot occur, as a flash only occurs directly in the mixture at the proper time, and ignition is insured. Any number of ignitions can be effected per minute desired, as the engine is arranged to run at different speeds. No attention is required but to oil the bearing of the dynamo occasionally.

The ease with which this engine is started is a very valuable

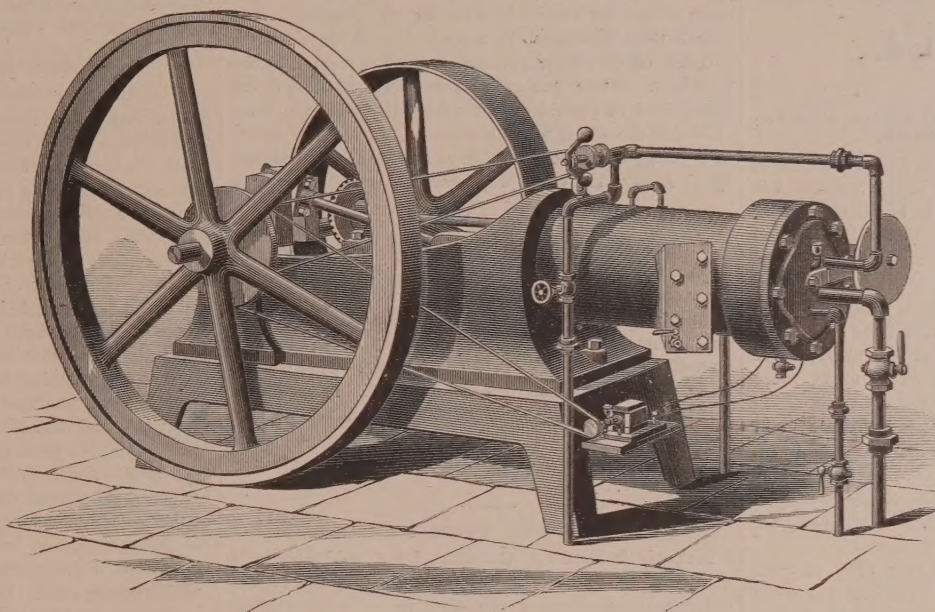


FIG. 1.—THE "PARKER" GAS ENGINE.

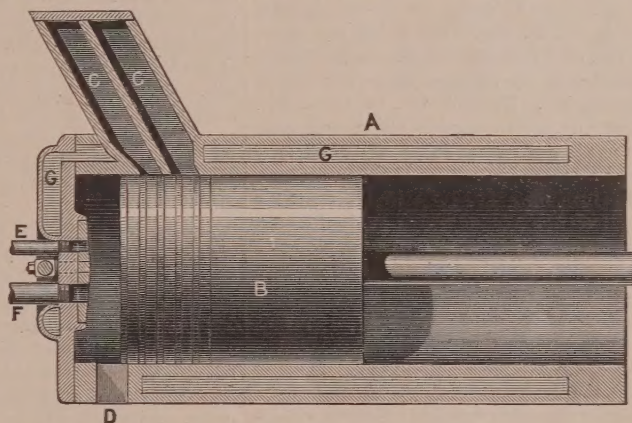
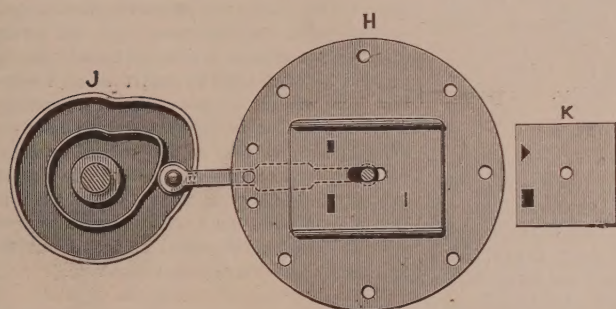


FIG. 2.—INTERIOR PLAN OF "PARKER" GAS ENGINE.

A, Cylinder.
E, Gas port.
J, Valve and seat.

B, Piston.
F, Air port.
I, Cam wheel.

C, C, Auxiliary chamber.
G, Water space.
K, Valve.

D, Exhaust port.
H, Cylinder head.

ploded in a rapid, powerful series of explosions in detail. All impact or shock is avoided, and a steady, elastic pressure is imparted to the piston. This result is effectually secured by allowing but a part of the charge to be exploded at a time. The mixture of air and gas is admitted to the cylinder, by a movement of the piston, and by the return stroke it is compressed in separate compartments or auxiliary chambers, having a series of ports directly connecting the chambers with the bore of the cylinder. Fig. 2, sectional view, sufficiently shows the piston covering the ports to the chamber C, C. The separated portions of the charge are thereby held in reserve, to be exploded as the piston passes over the ports in its power strokes. The initial or firing charge being ignited by an electric spark, as the piston uncovers the ports of the first compartment, the flame of the initial charge igniting the mixture in the first auxiliary, which explodes directly into the cylinder, adding an increased pressure (without producing impact or shock), the flame or heat of the chamber igniting each subsequent chamber in turn, thereby producing a rapid series of impulses, which the indicator cards show to be the result of this method of operation. By this system the pressure can be so distributed to continue very nearly with equal force throughout the stroke. The pressure is very steady, and imparts a like effect to the fly wheel.

The charges deposited in the auxiliary chambers receive heat, and thereby become more expanded than by

is entirely obviated. The admission valve in the "Parker" engine is located inside the cylinder, and operated by a cam, imparting an intermittent movement. The valve moves only when there is no pressure in the cylinder. By this time the cylinder is cleared of the products of combustion, the ports in the valve have moved over the ports in the face-plate or head of the cylinder. During the out stroke of the piston a mixture of air and gas is admitted, and while the crank is passing the dead center point the valve moves back and closes the ports and remains stationary. During the compressing and the power strokes the internal pressure holds the valve firmly to its seat. The greater the pressure within the cylinder the tighter the valve is seated.

The valve consists of a simple flat piece of metal actuated by a stud projecting through a slot in the end of the cylinder; consequently no packing is required. An air and a gas port in the valve correspond to ports in the face-plate. This valve has been run sixty days continuously, we are told, without the ports becoming clogged with the burnt products of oil in the least, as very little or no oil is used. There being no friction, and nothing to wear out, insures a long life for the valve.

In this engine the objectionable old-style jet method of igniting is entirely done away with, by igniting with the electric spark generated by a small dynamo. This means for igniting the explosive mixture of a gas engine possesses, we are informed, all that can be wished for. A

feature. By simply giving the fly-wheel three or four turns the charge is ignited, and the engine begins to develop its full power. This engine is guaranteed by the makers to run longer without attention than any engine in use. The engine is regulated by an automatic governor arranged to control the gas. The governor is adjustable so that the speed of the engine can be easily varied, and run with perfect regularity. This is often a very convenient feature. The gas consumed is in direct proportion to the power developed. When but a small amount of work is required, correspondingly less gas is consumed. This engine is claimed to give out very nearly all the indicated power, into actual power, from the reason that the loss by friction is very small.

In ordinary-sized engines the gas consumed is about twenty feet per indicated horse-power, while in larger sizes this can be considerably reduced. The higher the illuminating qualities of a gas the greater its efficiency to produce power in the gas engine. The future before gas engines is certainly very promising. At the low prices for gas, engines up to 25 horse-power have advantages over steam, as no danger from explosion of boilers as with the steam engines, can occur. No licensed engineer is required. No danger of fire; and the engine can be placed in any part of a building and operated by any one of ordinary ability. The uses to which the gas engine may be applied are almost numberless, for every place where a small steam engine can be used the gas

engine will work with economy, for driving printing presses, lathes, elevators (freight or passenger), exhausters, fans, small shops, dynamos for electric lighting, etc., etc.

This engine is the invention of Mr. L. C. Parker, of Robinson, Kan., and is now being built by the YONKERS MAN'G COMPANY, Mr. Chas. E. Skinner, agent for the Company, Yonkers, New York. The engines are manufactured in sizes to meet the trade. A four horse-power was running with success at the American Institute Fair, New York City.

Communicated.

ELEVATORS AND THE CROP IN THE TRANS-MISSISSIPPI SECTION.

Editor American Elevator and Grain Trade:—The most productive year ever experienced in the Southwest is rapidly drawing to a close. And it is certainly with feelings of the greatest satisfaction that all interested look back on the results of the year. Kansas has especial reason to be proud. Her first harvest consisted of 30,000,000 bushels of excellent wheat, which was followed by nearly that amount of oats, and her busy farmers are now gathering a corn crop that will aggregate at least 180,000,000 bushels. It is more likely to be more than less. Missouri also has a very fine corn crop. In places it is bad, but mostly good. The aggregate yield will probably nearly, if not quite, equal that of Kansas. In the matter of corn Nebraska has excelled herself this year. The crop of the state will undoubtedly be several millions in excess of 100,000,000 bushels, although the speculators figure it at much less than that.

The preparations for handling the new crop of corn have been very active throughout the season. On every line of road new warehouses and elevators have been erected. On the Ft. Scott & Wichita road, Mr. Beck, of Iola, has fitted up a house at Moran for shelling in transit, and Henry & Co., Ft. Scott, are doing the same, while Davis & Co., of Ft. Scott, who buy on the above named road, are fitting up in good shape for transit shelling at Nevada, Mo. Davis & Co., of whom Mr. Harris is the company, are among the oldest and most reliable grain firms in that section of country, gentlemen in manners, and honorables in business. Durkee & Stout, another first-class firm, have fitted up in Ft. Scott for shelling in transit off the road already mentioned. Although a new road comparatively, it starts out well this season with about all the stuff it can haul.

Along the Southern Kansas road, as I have before told you, a number of new houses have been fitted up, and quite recently more have been added at the western end, one or two at Oxford, and one at Wellington. Wichita also is increasing her elevator capacity. The Union Pacific and branches have added a number of small houses, nearly all of which, I think, I before mentioned. The Central Branch (Missouri Pacific) have added several, among them Roach Bros. and the Clyde Milling Co. are building new houses at Clyde. Just across the line, on the B. & M., in Nebraska, at Superior, a small town a little ways east of Red Cloud, two houses are being fitted up. Guthrie Bros., two honest, hard-working and reliable "dusties," who have a first-class water mill, or will have when the improvements now under way are completed, are adding an elevator for handling corn at the rate of 500 or 600 bushels per hour. McCorkle is fitting up with steam for the same purpose, putting in the same size and kind of sheller—a No. 2 Victor. In Kansas City no very great change has been made in the facilities for shelling corn. The country is shelling so much more they think they won't need it. Minter Bros. have put in a new sheller, but it simply replaces an old one, and has more capacity. The Atchison Elevator, at Atchison, have replaced their old sheller with a new one of larger capacity; also a small new house has been built in Atchison.

Altogether the outlook is good for a very prosperous winter business in handling grain throughout this section of country. I would remark that the corn crop of the State of Kansas is probably not quite so large as I have previously estimated it. That is due mostly to a period of drouth that set in after the middle of August, and before the corn was all made. That cut down the yield very materially, but the crop is very large, away above the estimate made by speculators. The last report of the State Agricultural Bureau put it a little in excess of 182,000,000 bushels, and there is probably all of that,

and more, and it is all good, well-matured corn, unless it be some very early corn that ripened prematurely during the drouth.

Kansas City, Dec. 2, 1883.

ABERNATHEY.

Legal Notes.

Taxation and Corporation.

A corporation was formed to purchase, etc., wheat and other cereals for distribution among its members. The cereals were purchased by a general agent appointed by a board of directors, and with money furnished by the members. When purchased from time to time, it was distributed in certain portions according to the by-laws. Held that the wheat when purchased was the property of the corporation, and taxable as such.—*State vs. Minneapolis Millers' Association, Supreme Court of Minnesota.*

Bucket Shop.

"If 'bucket-shop' means a place where wagers are made upon the fluctuations of the market price of grain and other commodities, then I think the evidence shows the complainants keep such a 'shop,' and are of the class which defendants are prohibited from furnishing the market quotations of the Chicago Board of Trade. This is gambling, and a very pernicious and demoralizing species of gambling, which a court of equity should not protect, even if the Board of Trade had not taken action on it."—*Bryant vs. Western Union Telegraph Company, 7 Federal Reporter.*

Grain Contract.

McBride & Coyne, of Corydon, Iowa, sold corn at a named price for No. 2 and rejected. Mr. Carrington, the purchaser, directed the corn to be shelled at the Corydon elevator. The first car inspected No. 2, but several cars that followed went in as "no grade." The shippers drew for full price as No. 2, which was paid. When Carrington found the corn no grade, he asked a refund of the difference, which was refused, and he then brought suit. Defendants filed a cross-bill, asking that the contract they had be reformed by such language as would leave Carrington no option as to the grade of the corn forwarded. This, Judge Shiras, of the United States court, says can not be done.—*N. W. Miller.*

Damages to Grain in Store.

A lot of oats were shipped over a railroad, but they were not called for until at the end of two months. The storage charges were \$275, about which there was some dispute, and it was charged that the oats were damaged. The matter was settled upon the payment of \$75, and a receipt was given for the freight and one taken for the oats as delivered according to the bills of lading in good order. An action was brought against the company to recover damages for injury to the oats, and the plaintiff recovered. The case, *Denver, South Park & Pacific Railroad Company vs. Harp*, was carried to the Supreme Court of Colorado, where the judgment was reversed. Judge Stone, in his opinion, said: "The settlement with the warehouse company was a complete discharge and waiver for any claim of loss or damage to the goods, without considering the plaintiff's right in allowing the oats to remain in store for two months."

Firing Elevator.—Title to Grain Therein.

A dealer had put some grain in an elevator, and when that was destroyed by a fire resulting from the negligence of an engineer running a locomotive, he sued the railway company for his loss. In this case—*Arthur vs. the Chicago, Rock Island & Pacific Railroad Company*—the company set up the defense that the plaintiff had no ownership in the grain, as he had mixed it with the other grain in the elevator, which in mass was the property of the warehouseman, who alone was accountable to the depositor. The plaintiff recovered a judgment below, and the Supreme Court of Iowa, on appeal, affirmed it. Judge Rotbrock, in the opinion, said: "When a warehouseman, with the consent of the owner of grain of the same grade and quality, mixed it in a common mass in his storehouse, the owners became tenants in common of the entire amount of grain of like grade and quality; and this tenancy in common continues, although the entire mass in store may be changed by successive additions and subtractions. Each depositor in an elevator is a tenant in common of the entire bulk of the grain, and is entitled to his share on demand. The

court cannot take judicial notice, as the company claims of a custom to mix and mingle grain by warehousemen, yet the court cannot ignore the fact that grain elevators cannot be operated in any other manner. If a proprietor of an elevator should be required to store each farmer's grain in a separate bin, and be held liable for any loss or damage if he failed to do so, the storing of grain in elevators would cease. The fact that the plaintiff's grain was mixed with other grain without his knowledge does not affect his rights here, for the mere fact of admixture of goods of the same grade and quality will not divest the owner of his property, whether the act be done with or without his knowledge."

A Contract to Deliver Corn.

E bought 50,000 bushels of corn from W on the Ohio River, and it was to be delivered at New Orleans in twenty days, where a ship lay chartered to carry the grain to Europe. The Ohio was subsequently frozen over, and there was a delay of a month in sending the corn down. E was compelled to pay \$2,928 demurrage to the ship, and he sued W for that amount, claiming that he was damaged by his breach in that sum. In this case—*Engster vs. West*—the plaintiff had judgment, and defendant appealed to the Supreme Court of Louisiana. Judge Manning, in the opinion, said: "When by a fortuitous event or irresistible force a party is hindered from giving or doing what he has contracted to give or do, or is from the same causes compelled to do what the contract bound him not to do, no damages can be recovered for the failure to perform. There are two exceptions to this rule: 1. When the party in default has by his contract expressly or implicitly undertaken the risk of the fortuitous event, or of the irresistible force; 2. If the fortuitous event, or case of force, was preceded by some fault of the party, without which the loss would not have happened. In its legal sense fortuitous event is synonymous with 'act of God' in the common law. It is not imperative in this case to say whether or not the freezing of the Ohio River in midwinter is a forbidden event as defined by code. It would seem that such an event might reasonably be expected in that latitude at that time—that it was probable and seasonable. And the evidence shows that for eleven days after the making of the contract the river was open for navigation, and that the defendants neglected to ship the grain; and, besides, he contracted to send this corn when he knew that there was the danger of the ice forming. It must be presumed that he contracted with reference to this danger; and, whether on this ground or that of unreasonable delay, he must be held liable for the amount paid for the detention of the vessel. He is excluded from the defence that a fortuitous event prevented him from fulfilling his contract; he is shut out from such a defense by both exceptions to the rule."

Telegraph Companies and the Bucket Shops.

Keepers of a "bucket-shop" filed a bill in equity to restrain a telegraph company from removing from their office a "ticker," by which they received the market prices from the Board of Trade, of which they are members. They claimed that they should have the injunction on two grounds: First, that they were entitled to the information as matter of news from the telegraph company; second, that as members of the Board of Trade they should be supplied with the room prices. A temporary injunction in this case, *Bryant vs. Western Union Telegraph Company*, brought in the United States Circuit Court for the District of Kentucky, was dissolved after hearing full argument upon the questions involved. Judge Barr, in the opinion, said: (1) "The duty of a telegraph company to the public in its business of telegraphing is not in this case. It is, perhaps, true that if the customer keeps his margin good so that he cannot be closed out, and does not exercise his right to settle upon the basis of the difference in the prices of grain, he can command a compliance with the contract and a delivery, but if the course of business between the complainants and their customers is to settle their alleged contract by a payment of the differences in the market rates, the fact that a customer may, under certain circumstances, require an actual delivery, does not relieve the complainants from the charge of carrying on a 'bucket-shop.' It is the general course of a man's business which defines and classifies it. If 'bucket-shop' means a place where wagers are made upon the fluctuations of the market prices of grain and other commodities, then I think the evidence shows that the complainants keep such a 'shop' and are of the class which defendant is prohibited from

furnishing the market quotations of the Chicago Board of Trade. Gambling on the fluctuation of the market prices of stocks, grain, and the like is against the public policy of the state, though it may not be a crime punishable by fine or imprisonment, and a court of equity will not in any way protect it. (2) The complainants were supplied with the reports of this board by means of a 'ticker' at their place of business, not as members of the Board of Trade, but as any other person would be supplied with them. The Board of Trade does not supply or cause to be supplied these reports for its members, and the right to them does not in any way pertain to the membership of the board, and is entirely distinct from it."

THE ILLINOIS AND MICHIGAN CANAL.

Governor Hamilton, of Illinois, has written an official communication to President Arthur, of date Nov. 15, in which he announces the action of the State Legislature on the subject of the cession of the Illinois and Michigan Canal to the United States, with the result of the vote of the people and Governor Cullom's proclamation thereon, and a brief history of the canal. By acts of Congress in 1822 and 1827, the right of way, ninety feet of land, and a quantity of land equal to one-half of five sections in width on each side, was given to the state for this purpose, with the proviso that the canal, when completed, should remain forever a highway for the use of the U. S. Government and its accredited officials, free of toll or charge, or that, in case of a failure to build the canal, the state should pay to the United States the amount of any of this land previously sold. The entire cost of the canal construction is \$6,557,681.50, principal and interest included. The amount received from sale of lands is \$5,886,039.68, and the net earnings \$2,933,691.74, or a clear profit, paid into the state treasury, of over two and a quarter millions, which is more than one-third its entire cost; while, besides the canal, there remains still many million dollars' worth of these lands to the state.

The whole northern part of the state has been greatly benefited by this improvement. Chicago, Ottawa and the intervening cities have been built upon canal lands, and "the assessed valuation of the four counties through which this canal passes is greater than the fifty counties south of the capital." These were the facts in 1879, since which time no part of the appropriations made in its behalf have been expended; the canal has been self-sustaining.

But the cession has been made, and its acceptance is now urged on the ground of national interest in a grand waterway that will connect the Mississippi and the Great Lakes, free to the commerce of all the people of the nation. To this object the following conditions, recommended by Governor Cullom and the legislative committee, were affixed to the transfer: That in furtherance of the policy of the state, indicated in constructing two permanent dams at Henry and Copperas Creek for increasing the water in the Illinois River, improvements should be made by the government that will render the river and canal, at all stages of water, navigable to all vessels drawing less than seven feet of water. The general government has already undertaken the construction of dams similar to the above named, that are intended to continue this stage of water through the entire length of the river; the enlargement of the canal to the same extent accords with this policy. Governor Hamilton respectfully requests His Excellency to transmit these papers to Congress with appropriate recommendations, in view of the great importance of the questions involved in the cession.

BROOM CORN.

The cultivation of broom corn, and its commercial importance, have greatly increased since the early part of this century, when it was mainly limited to New England and New York. It is now largely produced in Illinois, Missouri, Kansas and Nebraska. The varieties cultivated twenty-five years ago, including the Dwarf then introduced, have almost entirely disappeared, and the Early Mohawk and York, and the Shaker, are now generally cultivated. These are essentially the same; the brush of the first turns red, but is very bright and much sought after by broom makers. The uses of broom corn are principally limited to the work of the latter, although the seed is valuable as food for animals. But this is very secondary, and as the value of the cane for

broom making is greatly enhanced by cutting when the seed is immature, they are of slight importance. For broom making the invaluable characteristics of this plant have no rival, and the wide range of territory over which it is easily cultivated, with its increased demand, must continue to give it steadily increasing value to the manufacturers and dealers.

General Notes.

It is stated that Winnipeg, Manitoba, will ship 3,500,000 bushels of wheat during the winter and spring.

It is reported that Kansas shows the largest average yield per acre of wheat and oats this year of any state.

The third renewal of a patent on a machine for steaming and drying grain was recently granted to L. V. Moulton, of Grand Rapids, Mich.

In small elevators run by horse power sieve and suction separators are very unreliable machines, as they require a steady and uniform motion.

Some one has estimated that every bushel of wheat produced in this country is sold from five to twenty times in passing from the producer to the consumer.

Another bucket-shop has been started in this city under the high-sounding name of "The Chicago Grain and Provision Exchange." A pile of grain is exchanged in bucket-shops—in a horn.

George McHie, who has been running a bucket-shop in the rear of 127 La Salle St., this city, has suspended, but unfortunately (for future hunters of the bucket-shop tiger) expects to resume again.

Montreal seems an unfertile field for bucket-shops. During the past week two more proprietors of these detectable institutions skipped to this side of the line to join the other keepers who have preceded them.

Some of the correspondents of the *Cincinnati Price Current* are writing letters to the editor of that paper asking him to turn "bull." He has turned "bull" on the *Price Current*, which has been advanced to \$5 "seller the year."—*Chicago Inter Ocean*.

Minnesota grangers complain because the elevator men and millers dock them for the dirt which their wheat contains. They think it is one of the rights which ought to be guaranteed them, to be paid for any amount of dirt which may be mixed with their wheat, whether it be one pound or ten to the bushel.

Not very long ago some foreign parties came to this city with a view of looking over our elevators, as they were about to build one in their own town. They looked over the plans of an engineer to such good purpose that they went home and built their elevator strictly in accordance with his plans which they did not pay for.

The directors of the Boston Board of Trade have passed resolutions requesting members to take measures to caution shippers against making consignments without careful investigation, as there are certain parties soliciting consignments and endeavoring to make purchases on credit, who appear to be swindlers. They assume names which resemble those of reputable firms.

"It was remarked yesterday," says the *Chicago Tribune* of last Saturday, "that the wheat situation suggests the story about the noble Roman who began by carrying a calf on his shoulders and kept it up each day until the animal had grown to be a bull. This will become a bear story if it be added that a time came at last when the load was too heavy for the athlete to carry."

The last report of the Ontario Agricultural Bureau says: "A smaller area of fall wheat has been sown than last year, and owing to the autumn drouth the ground at seed time was hard and lumpy. The new wheat being shrunken with rust and foul with chaff and weed seeds, most farmers sowed old grain; others sowed new seed and kept the old for bread. In some instances both failed to germinate, and the ground was re-sown. The frosts and cold winds of September and October retarded growth in a marked degree, and excepting on warm soils in a hearty condition the plant looks thin and weak."

At the meeting of the Illinois Railroad and Warehouse Commissioners, held at Springfield, Nov. 14, the report of Frank Drake, Chief Grain Inspector at Chicago, showed that during October there had been inspected 27,785 cars of grain received by rail, a gain of 9,596 cars over October, 1882; and 556,500 bushels of grain by canal

and lake, a gain of 93,787 bushels over the corresponding month last year. The shipments for October aggregated 8,729,701 bushels, an increase of 2,154,482 bushels over October, 1882. The receipts from Nov. 1, 1882, to Oct. 31, 1883, were 235,231 cars, an increase of 64,001 cars over the preceding year. This increase in grain receipts shows an increase of receipts for October of \$3,913 over the same month last year.

That New York is the leading market for oats is now very generally conceded, and if I am not greatly mistaken the dealings here, spot and options being taken together, equal, if they do not exceed, the transactions of any two markets combined. There can be no question whatever with reference to the consumptive demand as the quantity purchased by jobbers from day to day is larger than the gross receipts at any other point. I am informed that the daily consumption in this immediate neighborhood averages fully sixty thousand bushels, not to mention the large quantities taken for coastwise shipment. In options, also, a very extensive business is being done, over a million bushels being reported on an active market.—*N. Y. Produce Ex. Reporter*.

Late Patents.

Bearing Date Nov. 13, 1883.

ELEVATOR FOR CORN SHELLERS.—William O. Gotchall, Garfield, Ill. (No model.) No. 288,426. Filed July 21, 1883.

ELEVATOR BUCKET.—Nathaniel S. Ackerly, Huntington, N. Y. (No model.) No. 288,197. Filed Aug. 16, 1883.

ELEVATOR BUCKET.—Frank T. La Rose, Pawtucket, R. I. (No model.) No. 288,581. Filed Sept. 24, 1883.

GRAIN DRIER.—John Gregory and Valentine Lapham, Marion, Ohio. (Model.) No. 288,428. Filed July 10, 1883.

MACHINE FOR DRYING GRAIN.—Luther V. Moulton, Grand Rapids, Mich. (No model.) No. 288,357. Filed Feb. 4, 1882. Renewed March 24, 1883.

GRAIN ELEVATOR.—Marquis F. Seeley, Fremont, Neb. (No model.) No. 288,371. Filed Dec. 26, 1882.

STORAGE OF GRAIN.—Thomas F. Seery, Montreal, Quebec, Canada, assignor of one-third to Hermann Stubbendorff, same place. (No model.) No. 288,500. Filed April 3, 1883.

Bearing Date Nov. 20, 1883.

DRYING APPARATUS.—Alfred Edwards, New Haven, Conn. (No model.) No. 288,782. Filed Feb. 8, 1882.

AUTOMATIC GRAIN WEIGHING APPARATUS.—David D. Kuhlman, New York, N. Y. (No model.) No. 288,820. Filed Oct. 4, 1883.

Bearing Date Nov. 27, 1883.

GRAIN CAR DOOR.—Benjamin H. Gatten, Bath, Ill. (No model.) No. 289,247. Filed May 14, 1883.

ELEVATOR AND CONVEYOR.—Isaac N. Matlick, Edina, Mo., assignor of one-half to J. N. Prather, San Jose, Cal. (No model.) No. 289,291. Filed April 21, 1883.

APPARATUS FOR TRANSFERRING GRAIN, ETC.—Lyman Smith, Kansas City, Mo. (No model.) No. 289,316. Filed Oct. 31, 1883.

MOUTHPIECE FOR GRAIN TRANSFERRING APPARATUS.—Lyman Smith, Kansas City, Mo. (No model.) No. 289,315. Filed Oct. 2, 1883.

Issued on Dec. 4, 1883.

CONVEYOR.—Sebastian Stutz, Allegheny, Pa. (No model.) No. 289,466. Filed June 18, 1883.

DRIER.—Thomas B. Farrington, Minneapolis, Minn. (No model.) No. 289,635. Filed July 9, 1883.

BLAST REGULATOR FOR GRAIN SEPARATORS.—John J. Moran, Neoga, Ill., assignor of one-half to Franklin D. Voris, same place. (No model.) No. 289,436. Filed July 3, 1883.

GRAIN CAR DOOR.—Francis Pond, Hinsdale, assignor to himself and W. M. Pond, Chicago, Ill. (No model.) No. 289,445. Filed Aug. 2, 1883.

SCREW CONVEYOR COUPLING.—John Chivill, Chicago, Ill., assignor to the Webster & Comstock Manufacturing Company, same place. (No model.) No. 289,751. Filed Oct. 20, 1883.

AUTOMATIC GRAIN SCALE.—John B. Stoner, New York, N. Y., assignor to the Stoner Automatic Scale Company, same place. (No model.) No. 289,784. Filed May 26, 1883.

The Howe Scales have all the latest improvements. It is true economy to buy the best. Borden, Selleck & Co., agents, Chicago, Ill.

BOARD OF TRADE MORALITY.

BY VAN BUREN DENSLOW IN NORTH AMERICAN REVIEW.

[Continued from last month.]

Nothing could be more satisfactory than the candor with which Mr. Lloyd seems to admit the beneficence of the Board of Trade's work, before proceeding to ask sentence of death against its promoters, because the fingers of the children are burned with the sparks that fly from its anvil. He concedes that a hundred years ago men had to fight against the popular sense of right for the privilege of buying grain at all to sell again, for the "popular sense of right" then said that every man who buys grain to sell again adds his profit to its price, and therefore necessarily makes bread dear. He concedes that the "popular sense of right" a hundred years ago was a very ignorant affair, and charged the agency of the middleman with making bread dear, when in fact, the middleman was doing more than any other to make it cheap. After thus showing that the "popular sense of right" of a century ago was an uninstructed idiot, utterly incapable of even thinking soberly about the grain trade, he prescribes, as a cure for the supposed evils of the present grain trade, a system of national regulation by this same "popular sense of right," i. e., by a submission of questions, which they have no means of comprehending, to a general convention of the non-experts in Congress assembled.

Mr. Lloyd styles Boards of Trade vast "establishments for the manufacture of prices,"—"concentrations of news, capital, and middlemen, in a focus,"—"legislatures, whose enactments are prices," and "more than negative registers of prices determined by a confux of forces external to them." In short, he looks upon them as clocks which, at most periods, may merely record the time, but charges that they once in a while step outside their province and actually create the time. He thinks they are barometers that once in a while create the storm which they ought only to indicate. If this be true, it is a grave offense; I regret that Mr. Lloyd, with the great resources at his command, disdains to perceive that the proof of one such accusation would make him immortal in philosophy, for it would establish that there is a portion of the universe not governed by law.

The means of proof are plain. He has only to show that, in one instance, when the supply exceeded the demand and economic law required that prices should fall, a corner formed to send prices up reaped a splendid harvest of profit, in spite of the ineffectual efforts of farmers to forward their crops in time to break the corner, and in spite of the efforts of news collectors to prove to capitalists and dealers that the corner was fighting against economic law.

A survey of all the facts showing that, in the case of one distinct corner, those who relied on "brute wealth" were able to speculate against the economic law (that excess of supply over demand must reduce, excess of demand over supply must raise prices) would be worth whole columns of verbal efflorescence and camp-meeting rhetoric. Before we get up an indignation meeting against Jehovah, because the sun stood still for a day to enable the Israelites to slaughter their enemies, let us settle the little question as to whether the sun did stand still.

Mr. Lloyd is not specific about dates. He speaks of a corner in 1879-1880-1881 and 1882, although he tells us there are corners all the time. Somewhere among these we are to locate the following incident:

"At one time their wheat was piled up in the elevators and on the railroad tracks, intentionally stopping the way so that no other wheat could be got to market by the farmers and dealers. Wheat was refused to exporters at prices they could afford to pay. The English buyers went to Bombay and Calcutta; and the West Indies, which sent their first sample to Liverpool less than ten years ago, have, in consequence, taken a place next to us in supplying the British market. During the winter, four hundred vessels lay for months in New York harbor, the owners pleading for wheat even at ruinously low rates (of freight). Many of them ran into debt, and the majority of them had to sail away to seek cargoes elsewhere."

All this is breezily connected by Mr. Lloyd with the date of 1879. But alas, in 1879, instead of the steamers rotting at our wharves without cargoes, by reason of the grain being piled up in Chicago, we exported by far the largest quantity we have ever exported in any one year, being 176,426,000 bushels of wheat, and 103,450,000 bushels of corn, or fifteen times more than all our Chicago elevators could hold. If the wheat was piled up and blocked in 1879, it must have been for lack of cars and vessels to take it away as fast as it was forwarded. Our exports of that year compare with those of other years as follows, from Sept. 1 to Aug. 31 of each year:

	Wheat, bu.	Corn, bu.
1882-1883.....	123,402,000	45,114,000
1881-1882.....	125,705,000	26,290,000
1880-1881.....	159,975,000	83,370,000
1879-1880.....	176,426,000	103,450,000
1878-1879.....	152,075,000	79,031,000

A careful examination will show that this and the crisis in railroad freights, which immediately followed, occurred late in 1881, after the short crop of that year had made it apparent not only to our shrewdest grain buyers, but to all the world, that we were short by 700,000,000 bushels, as compared with the crop of the previous year.

It was in this winter, following the short crop of 1881, that Mr. Chauncey M. Depew testified in other language, before the committee of the New York Legislature, to the same supposed "fact" which Mr. Lloyd is above describing. Mr. Depew said:

"At the present time the grain at Chicago is controlled by a combination which has so raised the price that it is selling for less in Liverpool than here, and the encouragement to the grain interests of Liverpool has been such that new sources of supply have been discovered which will in future compete with this country."

Evidently Mr. Lloyd and Mr. Depew are "cornering"

the same fact, and Mr. Depew's testimony fixes it as an event occurring while he was testifying, which was in the winter of 1881-2, after our short crop of 1881. In fact, this was the only occasion on which wheat vessels left our ports in the manner described without being able to get cargoes.

Did the state of the supply and demand justify the high prices in Chicago, and the consequent withholding of wheat and corn from export? Let us see. The corn produced in 1881, in the United States, had been only 1,194,916,000 bushels, as against 1,754,861,535 bushels in 1880—a falling off in Indian corn alone of 559,945,535 bushels. Our total export of corn in 1880, with an abundant crop, had been 98,169,877 bushels, or only one-fifth as much as the shortage in the crop of 1881. We must either have imported corn from abroad, or used less corn than the year preceding, by nearly 500,000,000 bushels. And yet both Mr. Depew and Mr. Lloyd pathetically assure us, with every variety of rhetorical cadence, that any rise in corn on this account was due to manipulation and artificial "cornering," which should be suppressed by national regulation. Hence, if we had had a board of national regulation, and Depew and Lloyd had been members of it, they would have concurred in sending corn out of the country in the year 1881, although the shortage in our crop was then five times greater than our usual annual export. Surely if the design of these gentlemen had been to prove that any attempt at national regulation, so long as the present degree of capacity for misapprehension concerning the economics of the grain market lasts, would be a public nuisance, they could not have made their testimony so emphatic by design as they have done by inadvertence.

Our wheat crop in that year had fallen from 459,479,505 bushels in 1880, according to the census, to 380,280,000 bushels in 1881, according to Bradstreet's. Here was a decline in our production of 79,199,505 bushels, while our export of wheat and wheat flour in 1880 was 159,264,214 bushels, thus showing that the decline in production would compel a cutting down of one-half in our export, without allowing for the additional diminution of wheat export which would necessarily be caused by shortage in the other cereal crops.

The theory that the Chicago Board of Trade developed the Indian supply of wheat would, if true, defeat the charge contained in Mr. Lloyd's caption of "making bread dear." It would show them to be the most efficient of all philanthropists, as, in fact, on other grounds they are in making bread cheap. The charge contains more poetry than truth. The English had built 2,500 miles of canal and immense railways in order to develop this wheat culture in India, beginning twenty years before the Chicago Board held on so tightly to the crop of 1881. We think the English did it.

Nor do we admit that the Board made bread dear in England by holding on to the crop of 1881 for a time. For the ruling English price was 5s. 11d. per bushel in 1881, or \$1.47. The price American producers got for it, according to Mr. Nimmo, was \$1.19. If we let it go 26 cents below the English price, then Mr. Depew's guess that it was higher in Chicago than in Liverpool, did not define the average, but some exceptional fact. Meanwhile, the American farmer got for the export of 1881, which was 118,000,000 bushels, \$1.19; whereas, for the larger crop of 1880, he got only 95 cents, and for that of 1882 only \$1.03. The difference between what the Board of Trade gave him for the exports, and what Depew and Lloyd would have given him, was therefore 24 cents a bushel, or say \$28,320,000.

Instead, therefore, of denouncing the natural and beneficent workings of enlightened self-interest which detained the wheat, corn, and provisions in this country, through the "speculations," and with the capital of the Board of Trade, gentlemen so enlightened as Mr. Depew and Mr. Lloyd should long since have discovered their utility. Had the wheat and corn been permitted to go abroad in concession to their demands, they would only have been brought back by the prices here being carried up to what the tearfully rhetorical class of weeping economists would call the "famine pitch."

Mr. Lloyd concedes that a great many, perhaps a majority, of the farmers believe that, to them, corners are beneficial. Test, for once, the validity of their faith in the case of this particular corner so feelingly denounced by Depew and Lloyd. The Department of Agriculture reports that, for the seven abundant crops of 1880, viz: Corn, wheat, oats, barley, rye, buckwheat and potatoes, an aggregate of 2,885,853,071 bushels brought only \$1,442,559,918, while for the same seven short crops of 1881, aggregating only 2,175,175,064 bushels, the farmers got \$1,570,248,541. In short, for a crop less by 710,677,007 bushels in 1881, the farmers got more by \$127,688,623 than for the more abundant crop of 1880. Hence the farmers were not far astray in this instance. Mr. Lloyd gracefully admits that the Board of Trade "mobilizes and cashes the crops of the Mississippi Valley." He could hardly say more in behalf of the sun which causes them to germinate and fructify. It "brings the capital of the Bank of England and the Hopes of Amsterdam to meet the farmer when he drives up to the country station with a wagon load of grain to sell." If so, it does well. Very few missionaries or professional philanthropists, who make a living by doing good with other people's money, could do better.

Of "futures" he says that it is by their agency alone that a commercial crisis is prevented every year, and that Senator Hoar's proposal to stop trading in futures, if enacted, would produce an annual panic. But Senator Hoar who comes from a state where no grain is dealt in, is the most intelligent of the national grain sale regulators, as Mr. Reagan, who comes from Texas, where there are few railroads, is the most vigorous of the reg-

ulators of railways. It is the surplus spinsters in Massachusetts who are most zealous to regulate polygamy in Utah, and the nullifying planters of South Carolina, who never bought, used or saw a pound of pig-iron, who are most alarmed about the duty on that article, which none but iron manufacturers pay.

It was John Brown, who had never seen a slave, nor a master, nor a plantation, who at fourteen years of age saw a free negro whipped with an iron rod by a citizen of a free state, 300 miles away from the slave line, and forthwith swore a great oath that he would kindly deliver the entire slave race, of whose condition he knew nothing, into the condition of the free negro, whose suffering excited his pity, without maturing his feeble logical faculties. Thus it is that the genius for national regulation always inspires people to begin with those matters of which they know least, and to abhor all explanation of things which if they come to understand, they could not denounce. Thus it is that national regulation may often mean the national bedevilment of complex questions, through the forcible application to them of the crude notions of the presumptuous non-experts, whose only qualification for dealing with them is that they live so far away from them that they have no means of discovering the utilities that lie hidden under supposed evils, or the destructiveness involved in their fancied remedies. Mr. Lloyd should be cautious how he recommends that the planters of Texas and cotton-spinners of Massachusetts receive national license to hurl a brick or a boulder at the delicate machinery of our Western grain trade in the name of reform, when neither of them would know how to go upon the Board and buy 10,000 bushels of wheat.

Mr. Lloyd says, "These corners put prices down when the farmer wants to sell, and put them up when the miller needs to buy." Surely this is not instructive. It is not merely "sans culotte"ish; it is "sand-lot"ish. It is simply rant. We have farmers whose single crops of wheat alone range at from 50,000 to 1,000,000 bushels. I have known farmers in Illinois who, twenty years ago, would hold their crops of maize three years to get their price. Farmers, therefore, choose their own time for selling, and take the whole year to choose from. Mr. Lloyd admits this elsewhere, in saying of the Board that, "with all its faults, it is the finest piece of mechanism commerce has yet invented, and without it the American farmer could not retain his command of almost antipodal markets." If it is the American farmer who commands the Liverpool market, then the market cannot command the farmer.

Mr. Lloyd thinks it a grievous hardship that the Board of Trade should be left by the courts to be a law unto itself, and especially since the tribunals established within the Board may include members who have interests in the very disputes they are called on to decide.

He assumes that in the courts there would be a total escape from these evils. Far from it. Those who have had most to do with courts of law best apprehend the extent of their unsatisfactoriness. The sphere of their actual usefulness is extremely limited. They are the surviving relic of the old effort to rule society by organized force as a substitute for anarchic individual physical force. But trade cannot be forced. Its inherent nature claims freedom—not necessarily the freedom of foreign producers to trade in our markets untaxed, a travesty on true freedom of trade, but freedom from the coercive intrusions and blunders of non-experts in trade, freedom to follow the guidance of interest and the inducement of profit, freedom even to err and blunder, and to pay in losses out of one's own pocket the penalties of the error.

A church, a Masonic organization, a base-ball club, a theatrical company, a manufacturing establishment, and even a family enjoys a system of law of its own as distinctly removed from the interference of courts as is that of the Board of Trade. All these have a sphere of interior administration, in which it may be said they take their stand outside the law. A membership in either of these might come to have a pecuniary value. Yet it would be the height of absurdity for a court to attempt to sell such a membership for debt, or to enforce the election, by the other members of such an organization, of any new member whom a retiring member might desire to substitute in his stead. The abolition of just such a system of selling commissions in the British army and navy, forms one of the whitest plumes that grace the helmet of Gladstone as a reformer. But Mr. Lloyd weeps because what has just been abolished in the British army and navy as an abuse, cannot be introduced on our boards of trade as a reform. Board of Trade men cannot be more ignorant of law or of the rules of evidence than lawyers, legislatures, and judges generally are of the economics of trade and business.

Shall I stop to discuss the appalling assumption involved in Mr. Lloyd's title, "Making Bread Dear"? Must economic teachers, like Spanish bull-fighters, forever enter the arena of economic discussion with these socialistic red rags in one hand, as if society were a mad bull that must be made to glare with rage before the lance's point could let in light upon his brain? Will the time never come when such irritating captions will cease to be placed over an unproved indictment?

Three hundred men are at work on the new elevator at Burlington, Iowa, and the contractor expects to turn the building over to the owner ready for operations Feb. 1. The building when completed will be one of the most perfect of its kind in the West, and will cost at least \$250,000. Its storage capacity will be 800,000 bushels.

Fires, Casualties, Etc.

The Norrish elevator, at Appleton, Minn., was recently destroyed by fire, with its contents.

The Sawyer Elevator at Starbuck, Minn., recently collapsed, spilling 3,000 bushels of grain.

The warehouse of W. H. Dunbar, at Elkhart, Ind., was burned recently. Loss, \$2,000; insurance, \$700.

The elevator, mill, and warehouse of Mr. Divine, at Blding, Mich., was burned Dec. 6. The loss was \$10,000.

Marfield & Massie, grain dealers at Kingston, Ont., Canada, were recently burned out. They were only partially insured.

The grain warehouse and grocery of Geo. W. Lamb, at Hooker's Station, Ohio, was totally destroyed by fire on the night of Dec. 10. Loss \$10,000; insurance \$5,000.

Louis Mighells, a prominent grain dealer of Watertown, Rock Island Co., Ill., died on Nov. 25, of typhoid fever. He was one of the first settlers of Clinton, DeKalb Co., Ill.

The elevator at Portland, Dak., collapsed on the night of Nov. 30, and proved a perfect wreck. It contained about 25,000 bushels of wheat, and the loss was from \$3,000 to \$4,000.

Fred W. Brooks, president of the Board of Trade of Minneapolis, Minn., recently died suddenly of typhoid pneumonia, at the age of 44. His remains were taken to Battle Creek, Mich.

On Dec. 4 Dill & Miller's elevator at Langdon, Minn., was burned. The elevator had a capacity of 100,000 bushels, and at the time of the fire had 10,000 bushels in store. The loss was about \$25,000.

John Whitman, of Minneapolis, Minn., who has charge of Budd Reeves' elevator at Buxton, Dak., fell into an uncovered well at that place on Nov. 17. The well was sixteen feet deep. He was unconscious when he was taken out.

A fire originating in a wheat conveyor caused a small blaze in a mill at Monroeville, Ohio, recently. It was caused by a loose gudgeon in a hollow iron conveyor shaft the working of which cut in two the bolt that passed through the shaft and gudgeon. A piece of the bolt fell in the conveyor box and set it on fire.

The mill and elevator of the Eau Claire Lumber Co., at Eau Claire, Wis., was destroyed by fire Dec. 11. The elevator, with 30,000 bushels of wheat and 5,000 bushels of oats, was a total loss. It is thought that the fire was caused by friction from the machinery. The loss was about \$65,000, with small insurance. The company will shortly rebuild on an extensive scale.

A terrific explosion occurred at 8 o'clock p. m., of Nov. 29, at the Kansas Central Elevator, at Leavenworth, Kan., and the whole inside was at once in a blaze, and the whole structure and contents were rapidly destroyed, both of which were owned by the Missouri Pacific and Kansas Central Railroads. The building was valued at \$75,000, almost fully insured, and the grain at \$40,000; insured for about two-thirds. The supposed cause of the fire is spontaneous combustion.

A man named Kirkpatrick was seriously injured by falling into the ho'e through which the grain was conveyed into the hold of a propeller at Kingston, Ont., Canada, Nov. 27. It was with great difficulty that he was rescued. Holes were cut in the bin to allow the grain to run away from his head. His head was badly cut with the shovels coming in contact with him while the men were digging him out. It is thought, however, that he will recover.

AMERICAN ELEVATOR ENTERPRISE IN RUSSIA.

American enterprise has taken hold of the Russian grain interests, and from what we can gather from a report from St. Petersburg, it will show the Russians how to get their grain to market in a way that will be surprising to them. We cannot see that the introduction into Russia of American methods of handling grain will be other than advantageous to that country, and by so much as it is an advantage, detrimental to our own producing and shipping interests. But this is not the view taken by the Russian journals, which singularly seem to have taken a prejudice to the grain elevator company which has been formed, fearing that it will operate to our benefit. The *Novoe Vremia*, expressing this fear, says:

"We have learned from private sources that the grain elevator company is formed virtually in America. Its founders are said to be General Durnovo and Mr. Davidoff (Prince of San Donato), of Russia, Mr. Fisher and Mr. Martin, of the United States, and Duke de Morny and M. Mary de la Gand, of France. The principal capital is to be 25,000,000 roubles in gold (about \$18,000,000), which is to be raised in America. The company contemplates the building of grain elevators in the principal Russian ports which deal in grain, and the elevators are to be conducted according to the best methods of the American warranted grain elevators. It is evident that the interests of the great majority of our grain producers and grain dealers will be closely connected with this company, and, in fact, the company will hold in its hands to a considerable degree the fate of the Russian grain trade. We think it is the duty of the Government to protect the

interests of Russian trade against the ever-growing competition of our trans-Atlantic friends in the European grain market, and yet we hear that the new company is to be free from the control of our government, being placed under the direct protection of the laws of the United States. It is natural for the founders of the company to desire full freedom of operation, particularly in view of the fact that the capital is to be raised in America, but it is also very natural for us Russians to wish that the Americans, being our competitors in the grain trade, should not become the masters of our grain market."

The fact that Americans are likely to assume the direction of the grain trade in Russia, does not indicate that those interested are going to work for the benefit of competitors in the United States. They will rather make the most of their opportunity, and use every means for facilitating the marketing and shipment of Russian grain. If they did not, their investment would not be likely to prove profitable. The elevator system will not only be of great benefit to Russian producers by securing them better prices, but it will dispense with the small middlemen who have so long controlled their product. It has often been a matter of comment that Russia should be so slow to take advantage of our system of handling wheat, and grain elevators have long been needed in that country.—*Millers' Journal*.

THE WHEAT CROP IN THE NORTH-WEST.

A Minneapolis paper says: It has recently begun to dawn upon the minds of some people that the wheat crop of the Northwest is turning out better than was supposed at harvest time, and there is much speculation among grain men as to what the difference between first estimates and the actual results will be. While it is true that the last fall has been very favorable for the free movement of wheat in everything except prices, and that receipts have been unusually large, it is the belief of many who claim to have investigated the matter, that there is yet remaining in the hands of farmers a very large percentage of the crop. Farmers in Northern Minnesota and Dakota, who have but recently opened up their farms and are in debt to a great extent, have been compelled to sell their crops pretty closely, but further south, and in those districts where the farmers are able to take care of their obligations without being compelled to dispose of this year's crop to do so, have pretty generally refused to market their grain at the low prices which have prevailed this fall. While it is almost impossible to obtain full and complete data on this matter, the statements of elevator men and the figures given below give a pretty clear idea of the situation. It is generally admitted that the amount of wheat already marketed is greatly in excess of that marketed at the same time last year, but there is some difference of opinion as to the amount yet to come.

Mr. R. M. Hubbard, manager of the Millers' Association, says the association has bought about 8,000,000 bushels of wheat this year, which is 20 per cent. more than they had taken at the same period last year. Asked as to what proportion of the crop had been moved, he said that while he had no accurate information on that point he judged that about 55 or 60 per cent. of the crop had already been sold.

Mr. Trice, manager of the Northwestern Elevator Company, said about 1,000,000 bushels had been received by his company, which was fully 50 per cent. more than was taken last year at the same time. He was not prepared to give an opinion as to what percentage of the crop had been moved, but did not think the estimates first placed were much too low. He thought the farmers had sold more closely than was supposed.

Van Dusen & Co. have taken in about 1,000,000 bushels up to the present time, which is 50 per cent. more than they handled last year at this time. They thought the crop had been only about half marketed, and that the supply yet to draw from is much larger than was at first supposed.

The Minnesota & Dakota Elevator Company has handled 50 per cent. more wheat this year than they had last at the same time, the total being about 1,000,000 bushels. The crop in their territory has been only about half moved.

W. F. Meader & Co. have handled over 200,000 bushels, double the amount taken by them last year at the same date. Mr. D'Absolon thought not over 40 per cent. of the crop in their territory had been marketed, as the farmers were not compelled to dispose of their crop until they got ready.

The acreage of Minnesota for 1883, as given by the Commissioner of Statistics, is 2,507,171, and the lowest estimate of the crop, made Sept. 1, was fourteen bushels per acre, or a total yield of 35,100,394. For domestic consumption and seed is allowed 8,375,296 bushels, leaving the overplus 26,725,000. The crop of Dakota has been placed at \$18,000,000 to 20,000,000 bushels. The total estimated yield of Minnesota and Dakota is from 48,000,000 to 50,000,000 bushels. There has been moved not far from 23,000,000 bushels in both states, although much of this amount is still in the elevators in the country. The total amount of wheat received at Minneapolis since Sept. 1 is 6,500,000, and at Duluth 5,000,000 (estimated).

G. W. Van Dusen & Co. report that their elevators along the line of the Northwestern Railroad, together with the Central Elevator at Minneapolis, Minn., are full of grain, and that the Southern Minnesota crop has not yet been one-half marketed.

Items from Abroad.

The total exportation of wheat from Russia, from Jan. 1 to Nov. 15, was about 14,500,000 metric quintals (53,277,833 bushels), 150,000 quintals more than during the corresponding period last year.

The central provinces of Russia have forwarded grain so freely to the northern ports that, despite exceptionally liberal exportations, there are over 750,000 quarters of wheat, oats, rye, and barley now in granary.

A magnificent crop of wheat in the Argentine Republic is announced by the Buenos Ayres *Standard*. The area sown is much more considerable than that of last year, the increase being estimated at 30 per cent.

James Hayman, a grain porter in the Lancashire & Yorkshire Railway Company's warehouse, at Manchester, England, fell through a hole on the top floor, a distance of twelve feet, Nov. 12. He struck on his head. He died in about two hours.

A new cereal parasite has been discovered in a cargo of Russian rye sent from Amsterdam to Cologne, France. The insect was found to irritate the skin of the crew. Millions of them were found among the rye. The Phylloxera Commission will investigate the mystery.

The leading members of the grain trade, of Belfast, Ireland, are urging the harbor authorities of that port to take steps toward the erection of several elevators. The Belfast Harbor Commissioners held a meeting Nov. 21, at which it was agreed that a representative should be sent to Liverpool to inspect the grain elevators there.

A meeting of the grain trade was held recently at the New York Produce Exchange, to hear the report of the committee of nine who were appointed at a meeting some time ago to consider the Osterberg system of cleaning as applied to grain. They reported that they considered the advantages more than counterbalanced by the disadvantages, and therefore cannot recommend its adoption by the trade. The report was accepted and adopted.

It is said that the port of Rouen, France, is likely soon to have its trade considerably increased. The local Chamber of Commerce reports the entrance of a steamer of 1,000 tons register without any delay, the master expressing great satisfaction at the facilities afforded for unloading and the moderate charges made. It is also stated that such progress has been made in deepening the Seine that the steamship "Glenmarvie" was able to steam direct to the quay at Rouen with a cargo of 2,880 tons of rice. This steamer has a draft of twenty-two feet of water. The cargo would represent 107,000 bushels of wheat.

A SOUTHERN PACKAGE ELEVATOR.

Says the Charleston, S. C., *News and Courier*: The South Carolina railway company have recently added to their wharf a new machine to facilitate the handling of freight. It is called a package elevator and is well worth inspecting. There are very few yet in use, the improvements which render its working practicable having only recently been invented. The machine looks somewhat like an old-fashioned treadmill, but its operation is just the reverse. The corrugated roadway, by walking on which the man, mule, goat, or dog gives power to the treadmill, is the part of the elevator on which the load is placed. In the treadmill the roadway moves the machinery, in the elevator the machinery moves the roadway. This roadway is an endless wooden belt of the width of the railroad track, with cleats fixed on it at short intervals. This roadway or belt passes lengthwise around a wrought iron frame about 75 feet long, in which are placed cogged cylinders, by the revolution of which the belt is moved, the cylinders being run by a small engine on the wharf. The elevator is laid in a slip which has been cut in the wharf and extends from the wharf edge to a point about twenty feet from the railroad track, which is depressed below the surface of the wharf so as to bring the car floors on a level with the wharf floor. The outer end of the elevator is raised or lowered by a series of weights, so as to be on a level with the floor of the lighter which is being loaded or unloaded at any period of the tide. As soon as a lighter is ready to be unloaded the elevator is set in motion. The packages of any shape or size are thrown upon the endless belt, where they are caught by the cleats and are carried to the wharf floor, where they are delivered rapidly, safely, and without handling of any kind. If it be desired to load a lighter the engine is reversed, and a bale of cotton is placed on the belt and delivered on board without the slightest trouble. It is said to be the only elevator in the country that can be run both ways. As a labor-saving machine its equal has, perhaps, never been seen here. The work of loading or unloading a lighter of about sixty tons, which, under the old system occupied twenty or thirty hands an hour and a half or more, can now be done with less than half the number of hands and in twenty minutes. This elevator was built by Wm. Watson, of Chicago, Ill.

THE NEBRASKA CORN FAILURE.

Specials to the *State Journal* from all parts of Nebraska show badly for corn. The yield is smaller than expected, the quality poor, not being well ripened, and the cribbing slow. The weather is extremely favorable, but there will not be more than half a crop of merchantable corn.

Elevator and Grain News.

W. J. Worsley, grain broker of Peoria, Ill., has sold out.

It is reported that A. Meine, grain dealer at Secor, Ill., has failed.

The town of Qu'Appelle, Manitoba, is very anxious for an elevator.

The people of Otterbourne, Manitoba, want an elevator at that place.

Peck & Mossman, grain dealers of Ochiltree, Kan. have sold out.

Davis & Harrison succeed R. Davis in the grain business at Anita, Iowa.

Dale's new elevator at Coon Rapids, Iowa, has been opened for business.

Stevens & Freise, grain dealers at Defiance, Ohio, have made an assignment.

Metsger & Cookson, grain dealers at Helena, Ohio, have made an assignment.

Hubbell & Smith, grain dealers at Bridgman, Mich., have dissolved partnership.

Aspell & Dousman, grain commissioners of this city, have dissolved partnership.

S. E. Willard of Thawville, Ill., has closed out his grain business at that place.

Chas. L. Epps & Co., of this city, prominent malsters, made an assignment on Nov. 19.

The new elevator at Glenwood, Minn., was expected to be open for business on Dec. 15.

N. B. Bush has closed his Northern Pacific Elevator at Jamestown, Dak., for the season.

Several new and large elevators will be built in Minneapolis, Minn., during the coming year.

H. I. Deal & Co., grain dealers at Stanford, Ill., have dissolved partnership. J. Neff succeeds.

The new Duluth elevator will load vessels by pipes. It will be finished when navigation opens.

J. C. Singer has retired from the grain commission firm of Geo. C. Eldridge & Co., of this city.

Bowsher, Ettinger & Co., grain commissionmen of Terre Haute, Ind., have gone out of the business.

At Ardcho, Dak., the elevators have been severely tried to handle the grain that has been coming in.

In some parts of Manitoba millers and grain dealers are paying only 40 to 45 cents per bushel for frozen wheat.

The daily receipts of wheat at Mankato, Minn., one week recently was between 2,000 and 3,000 bushels, at a price of 82 cents.

The grain and produce firm of Stuffer & Oberholtzer, Davenport, Iowa, filed a bill of sale on Dec. 8. The liabilities were \$5,000 and the assets \$3,000.

F. J. Simmons & Co., grain commissioners at Detroit, Mich., have dissolved partnership, and are succeeded by Simmons & Jameson.

David Plewes of Brantford, Ont., Canada, flour and grain merchant, failed lately. His liabilities were estimated at about \$75,000.

The New York *Chronicle* reports eleven elevators burned in the United States during the month of September, and one in Canada.

Brown & Cannaday, grain dealers at Mulvane, Kan., have dissolved partnership, and the business is conducted by Brown & Helbert.

Martin Fisner & Co., millers at Lancaster, Ohio, have purchased roller detachable chain from the Lechner Mfg. Co. of Columbus, Ohio.

The failure is announced of the firm of Newton & Fuller, grain dealers at Springfield, Mass. Their liabilities have not been estimated.

J. C. Sanborn, of the wheat firm of Sanborn & Thompson, of Hastings, Minn., has sold his interest in the business to William Thompson.

The warehousemen report that Modesto, Turlock, and Oakdale, Cal., have produced 130,000 tons of grain this season, the best crop for many years.

The leading farmers of Portage la Prairie, Manitoba, have a project on foot to build a large elevator at that place, with a grist mill in connection.

Crocker, Pell & Boardman, of Minneapolis, Minn., furnish the machinery for an elevator of 50,000 bushels capacity on the Northern Pacific road.

The grain dealers of Duluth, Minn., speak of the white winter wheat recently received there from Oregon as feverish and soft, and do not think much of it.

Flax buyers at Greta, Southern Manitoba, have paid eighty cents per bushel for flax this fall, one man having bought over 50,000 bushels for the Eastern market.

One million bushels of flaxseed, it is said, will be marketed at Sibley, Osceola Co., Iowa, as a result of the last harvest, at the average price of \$1.10 per bushel.

Messrs. Swift & Lucy, Baltimore, Md., are having a warehouse fitted up with all necessary machinery for handling grain. The prospects are for a busy season.

The Kettenhoven Bros.' elevator at Appleton, Wis., has recently started up. The house is 40x28 feet, over 50 feet high, and contains machinery of the latest improved style, including an engine of 40 horse-power. Mr.

John Kettenhoven is the buyer and his brother superintends the work. The elevator, substantially built, has a capacity of 20,000 bushels.

The elevators at Brown's Valley, Minn., have already taken in more wheat than they did the whole of last season, and the daily receipts still average 2,000 bushels.

McCord & Decker, proprietors of the "Columbus Elevator" at Columbus, Ohio, have placed their order with the Lechner Mfg. Co. of same place for chain elevators, etc.

The shipments of grain from Duluth the past season were 7,021,934 bushels of wheat by lake, 750,000 to Milwaukee and Minneapolis by rail, and 237,240 bushels of corn.

The Lechner Mfg. Co. of Columbus, Ohio, have received additional orders from Thos. Bradford & Co., mill furnishers at Cincinnati, Ohio, for roller detachable chain.

Two carloads of grain reached Mackinac City, Mich., by rail recently from the Upper Peninsula. It is said that this is the first shipment of grain received from that region.

Z. B. Clark, A. N. Johnson, M. Hoban, and Theodore Hansen have organized a stock company to build an elevator at Benson, Minn., on which work will soon be commenced.

A 50,000-bushel warehouse is being built at Elk River, Minn., by Mills & Houlton. It is to be used in connection with their mill. The building will be two and a half stories high.

The Minneapolis Elevator Co., of Minneapolis, Minn., are about to put in the foundation for an elevator which they will erect next season. It will have a capacity of 1,250,000 bushels.

The new elevator of 100,000-bushels capacity being erected at Wabasha, Minn., by the Chicago, Milwaukee & St. Paul Railroad, is approaching completion, and will be a fine structure.

Judge Knickerbocker has given permission for the conservator of Perry H. Smith to sell at private sale, for \$9,687, an undivided one-eighth part of the Northwestern Elevator in this city.

Peter Kettenhoven, the senior member of the firm of Kettenhoven Bros., at Appleton, Wis., has sold his interest to Peter Heid. The elevator owned by this firm was only recently completed.

The Northwestern Railway Company have conveyed to Charles W. and George H. Wheeler the Northwestern Elevator at this city. The price paid was \$77,500. The building is upon leased ground.

Mr. J. A. Campbell, of Lexington, Ill., called upon us last week and renewed his subscription to the AMERICAN ELEVATOR AND GRAIN TRADE. Mr. Campbell thinks of putting in a grain drier and corn mill in his elevator.

Duluth, Minn., has now an elevator capacity of 2,850,000 bushels. On the completion of two elevators, now in course of erection, one of 500,000 the other 1,100,000 bushels, her aggregate capacity will be 4,450,000 bushels.

It is stated by President Barnes, of the Northern Pacific Elevator Co., that the wheat receipts at the Dakota elevators are equal to those received last year from the same territory, and there is a large per cent. still unmarketed.

The Lechner Mfg. Co. of Columbus, Ohio, have furnished the following firms with detachable chain belting: A. Bonnat & Sons, Louisville, Ohio; Reed, Lucas & Co. of Hawke's Nest, W. Va.; the Kennesaw Mfg. Co. of Memphis, Tenn., and others.

The Port Huron Elevator and Warehouse Association, of Port Huron, Mich., have filed articles of association. They have purchased property with 600 feet frontage on the St. Clair River, paying \$22,000, upon which they will, during the winter, erect a warehouse and dock, and subsequently a grain elevator.

The Illinois Trust and Savings Bank, Chicago, Ill., has been granted a license to carry on the warehouse business, and having secured the Chicago and St. Louis Elevator on the South Branch, will make it of the class A. Mr. John L. Mitchell is President and James S. Gibbs Secretary and Cashier.

A meeting of the Northwestern Elevator Co., of Minneapolis, Minn., was held on Nov. 14, for the purpose of reorganization, made necessary by the recent purchase of the stock of Locke & Thornton, T. B. Walker and D. M. Clough, of Clough Bros., of Minneapolis, Minn., who were added to the Board of Directors, which, with this addition, is now composed of D. M. Robbins, re-elected President, A. B. Robbins, Superintendent and Treasurer, and C. A. Magnuson.

A Dakota grain buyer stated recently on 'Change in Minneapolis, that nearly all the wheat taken in at his station on the Manitoba road was taken at No. 2 or lower, and very little at No. 1 hard. He states that this is because of the smut in most of the wheat of that section, due, he thinks, to soft seed. He says the farmers of that northern section do not realize the importance of sticking to the Fife hard wheat, and are led away by the advertisements of fancy wheats in agricultural papers.

The Cummer Engine Company have just completed an extension to their shops which will enable them to furnish any engine they build in about two weeks from date of order. Among some of the most recent orders of the Cummer Engine Company are a 14x30-inch engine for the Wellington Milling Company, Wellington, O.; a 10x20-inch for Mr. Caleb Loud, paper manufacturer, Loudville, Mass.; a 12x30-inch for the A. Plamondon

Manufacturing Company, Chicago, Ill.; a 10x20-inch for the Eli Thorpe Air Brake Company, Chicago, Ill.; a 14x30-inch for the North Pacific railroad company, St. Paul, Minn.; a 13x24-inch to the Straw Board Company, Minneapolis, Minn.; a 20x42 for the Stearns Lumber Company, Neponset, Mass.; an 18x36-inch for the Cypress Lumber Company, Apalachicola, Fla.

The Mankato, Minn., linseed oil mill is being supplied with new machinery. The capacity of the mill will be doubled, and the daily output will be, of oil 3,000 gallons, and of oil-cake twenty-eight tons, using 1,400 bushels of seed per day. The working force in the mill will be increased to twenty-four men. The flax seed which is used in the manufacture of the oil and oil cake is obtained from Southwestern Minnesota and Dakota, and with the present capacity of the works about 700 bushels are used daily.

Says the *Prairie Farmer*: "Farmers in some sections of Dakota are the victims of elevator monopolists. For instance, at Jamestown there are two elevators ostensibly owned by the Jamestown Elevator Company and the Stutson Elevator Company. It is alleged, however, that both are controlled by the same men." At any rate, they combine to depress the price of wheat when buying of the farmers. A few days ago they offered but 76 cents per bushel for No. 1 hard wheat, while at Spiritwood 81 cents was paid. In consequence the farmers are hauling their wheat to other points than Jamestown, and doing their trading elsewhere also."

Charles Kaestner & Co. have put in the Kaestner patent portable grist and feed mills for the following parties: J. H. Musselman & Co., Eaton, Ohio; O. H. Nordstrom, Punxsutawney, Pa.; White & Wallace, Allegheny City, Pa.; J. B. Belohiadesky, San Antonio, Tex.; R. F. Pettigrew, Sioux Falls, D. T.; B. H. Eaton, Eaton, Weld county, Col.; T. D. White & Bro., Norbome, Mo.; Crescent Milling and Elevator Co., Denver, Col.; L. A. Porter, Rexford, Stoddard county, Mo.; Pray Mfg. Co., Minneapolis, Minn.; H. F. Opfer, Waukon, Ia.; Otto Glesen, Canton, Ohio; Thomson & Taylor, city; Cras. Sydon, Conover, Iowa; Jacob Williams, Dakota, Ill.; L. C. Porter Milling Co., Winona, Minn.; the St. Paul Roller Mill Co., St. Paul, Minn. The firm report an increased demand for these mills.

An Indiana farmer tells the following: "A wealthy Quaker, named Nathan Morris, residing in Peru township, Parke county, has lost about \$30,000 in Chicago margins in the last year, and taken to drinking heavily. On Tuesday evening, after driving his aged wife away from home, he set fire to his fine residence and store, both being destroyed. In the store was a \$3,000 stock, all of which was lost. The neighbors were aroused, and as the old man was evidently insane, search was made for him all night. Next morning his boots were found by the side of a stream he had to cross, and later he was seen to board a north-bound passenger train of the C. & E. I. Railroad, bound for Newport. With him was a rough-looking young man, Morris being intoxicated. He was also seen to have about \$1,200 in cash, and it is feared his companion intended to rob him."

Says the *Locomotive and Ledger* of Stuart, Iowa: "A gentleman walked into Blanchard Bros. one day last week, and introduced himself as P. A. Simmons, attorney for Jas. M. Harper & Co., of Peoria, Ill., and announced his mission to be the collection of damages for the use of two grain dumps in their elevator, which he claims are infringements on the Swickard patents. Similar dumps are in use in every elevator in the West, and if the claim of damages for infringement can be sustained, as there seems good reason for believing it will, the owner of the patent will find it a source of great wealth. The sum demanded is \$50 for the first dump used, \$25 for the second, \$10 for the third and \$5 each for each additional one. The enterprising gentleman started on his tour but a short time ago, and has already, it is said, collected \$60,000 from Illinois and Iowa grain men."

Says the *Pioneer Press* of St. Paul: "As the outcome of a long chain of alleged discriminations by the elevator companies in this region, the farmers of Clay county held a meeting in Moorhead Thursday to consider the advisability of the organization of a farmers' elevator company, which would be owned and controlled by those directly interested. A. M. Burdick, of Glyndon, was elected president, and F. A. Elder, of Moorhead, secretary. The purpose of the meeting being stated by the chairman, it was unanimously voted that organization be perfected. Over \$3,000 of stock was signed to-day, and a committee of six was appointed to solicit stock and membership to the organization. A majority of the members present voted to build an elevator, and that it be located at or near Glyndon. Several of the farmers desired that it be located at Tenney, but owing to the fact that the location at Glyndon offered superior railroad facilities, that place was chosen as the site. The success of the movement is said to be assured."

The board of directors of the Lake Superior Elevator Company held a meeting Monday, Dec. 10, at the office of David Dows & Co., St. Paul, for the purpose of considering the propriety of enlarging their elevator facilities at Duluth. They resolved to increase the capital stock of the company to \$600,000 and to commence the construction of an additional elevator of 1,000,000 bushels capacity on the property of the Northern Pacific Railroad Company. Plans were also decided upon for temporary additional storage room for wheat, in case it should be found, later in the winter, that the elevators cannot take care of all that is offered. The Union Improvement and Elevator Company, of Duluth, are going to build another elevator on the grounds of the St. Paul

& Duluth Railroad, near their elevator A. The Duluth & Western Elevator Company are now at work on an extensive elevator, and with these three new elevators ready for business by the 1st of September next, it looks as if there would be elevator capacity sufficient to take care of all the grain likely to go to the head of the lake for some time to come.

A correspondent to an agricultural exchange says: "That soft corn business once again. The more I travel about and talk with the farmers and the more I read about it the more am I convinced that those living north of, say, a line crossing the state in the latitude of Mattoon, are in a woful fix, and I mean this to apply to a great part of Iowa, to Wisconsin, Minnesota, and on toward the pole. Why, here I read an item from a Henry county (Ill.) paper, stating that the farmers of that county will bring from Kansas at least 80,000 bushels of corn for feeding purposes. Think of this in the 'corn belt' of the greatest corn growing state of the Union! Is it any wonder the market price steadily advances in Chicago, or that the hogs are coming in in a half-fattened condition? The waste in the fields will be enormous this winter. A Kankakee county farmer told me that he supposed he had fifty acres of very fair No. 2 corn. But on examination, the other day, he found it in a terrible condition. It was during the late warm spell, and the corn was actually rotting on the cob to such an extent that a great deal of it was totally unfit for cattle or swine. Lucky is the man who can crib a lot of good corn this year! But what are we to do for seed? This is a question of great moment to thousands of farmers. It is, in fact, the question of the hour. It is time to be looking after this matter. We must get the best we can and thoroughly test it before it is too late. The experience of last spring is fresh to the minds of all. Let us have no repetition of it, if in human power to escape it."

At the Manitowish, Manitoba, meeting of farmers, Mr. Thos. Greenaway, M. P., in the course of an address, made the following remarks: "As he had said to some people he had spoken to recently upon this subject, and as there would be no difficulty in showing, did time permit, the railway corporation upon which they had to depend, were charging them for carrying grain to Port Arthur ten cents more per bushel than they need to do. The farmers could easily understand the effects of the monopoly by making a simple calculation. Supposing that one of their number had 200 bushels to market at Manitowish, the additional ten cents a bushel would mean the payment of \$20 per year to uphold that monopoly; if 500 bushels, \$50; and if 1,000 bushels, \$100. Was that the kind of thing the farmers of this country desired should continue to exist? He did not think it was. Would they tell him that that monopoly could exist in this country for a little more than seventeen years to come? Then if it could not, they wanted to consider the best means of removing it. The best way was to tell the people who were in authority over them that they would not submit to be ground down by any such monopoly. Most of them had come from a part of the Dominion where these restrictions did not exist, and they had been placed upon them since they came here. Should they tamely submit to such things? He said 'No.' (Cries of 'Never!') The Central Government must be given to understand in the most gentlemanly manner, and in the most lawfully framed resolutions that it was possible to frame, but at the same time in the most emphatic manner, that they would not submit to this monopoly."

The following, from the *North-west Farmer*, is a list of grain elevators on the C. P. R., with a statement of their capacity: Emerson, Hepburn & Irwin, 30,000 bushels; Waterloo Milling Co., 20,000 bushels; Ogilvie Milling Co., 15,000 bushels; Traill, Moulson & Clark, 25,000 bushels; Hudson Bay Co., 40,000 bushels; Niverville, John Macara, 35,000 bushels; Traill, Moulson & Clark, 15,000 bushels; Ogilvie Milling Co., 10,000 bushels; Winnipeg, Ogilvie Milling Co., 140,000 bushels; D. H. McMillan & Co., 65,000 bushels; Hudson Bay Co., 5,000 bushels; R. W. Francis, 30,000 bushels; A. W. Bawlf, 10,000 bushels; W. H. Burn, 10,000 bushels; F. S. Graig, 30,000 bushels; McBean & Co., 40,000 bushels. Port Arthur, Canada Pacific, 250,000 bushels. Morris, Ogilvie Milling Co., 6,000 bushels; Gretna, Ogilvie Milling Co., 51,000 bushels; Manitoba City, Ogilvie Milling Co., 45,000 bushels; Stonewall, Ogilvie Milling Co., 10,000 bushels; High Bluff, Ogilvie Milling Co., 10,000 bushels; Portage la Prairie, W. H. Smith, 40,000 bushels; S. F. Smith, 40,000 bushels; R. McCuaig, 30,000 bushels; Traill, Moulson & Co., 40,000 bushels; J. Mitchen, 50,000 bushels; D. J. McBean, 50,000 bushels; Hudson Bay Co., 40,000 bushels; Newman, Finnerty & Co., 30,000 bushels; Portage Milling Co., 100,000 bushels; Ogilvie Milling Co., 45,000 bushels; Carberry, Herbert O. Crowe, 10,000 bushels; Ogilvie Milling Co., 15,000 bushels; Traill, Moulson & Clark, 10,000 bushels; Brandon, Ogilvie Milling Co., 45,000 bushels; Kelly & Sutherland, 30,000 bushels; Bowerman & Co., 30,000 bushels; Woodworth & Russell, 1,200 bushels; Fortier & Burke, 1,500 bushels; Virden, Ogilvie Milling Co., 45,000 bushels.

Says the Gladstone, Manitoba, *Age*: "The price of wheat has jumped down on short notice twenty cents a bushel. With the first-class article commanding only seventy cents, and inferior sorts ranging all the way down from that to fifty-five cents and under, and freight rates between here and the Portage amounting to five cents a bushel at least, the prospect of our county in common with the Province being able to make much out of this year's crop, is not very encouraging. This Northwest will grow and expand in proportion to the amount of encouragement given it to raise the cereals; and it is altogether too bad and most hurtful when one man can

have the power, just because he has the cash, acting, it appears, in collusion with our great highway, the Canadian Pacific Railway, to put his own price on the grain grown here. Railroads must live, so must grain buyers, but the farmers likewise; and such high-handed ways of doing can be productive only of two courses—either in lessening the amount of grain raised, for if the price obtained has not something stimulating in it, farmers will rather stand idle than work idle any day; or making them band themselves into grangers for their own protection. The country must grow, and the people, who are the instruments to push ahead by their labors its growth, have surely as much right to look for protection as the industrial agencies of the older Provinces, who are making rich at our expense; and the sooner this is understood the better, for things are on a most unsatisfactory footing at present to the man that tills the soil. His brother farmer, who tills the soil across the boundary, is in every way better treated than the inhabitants of this Province."

The Trade.

The Webster & Comstock Mfg. Co., of this city, are putting additional machinery into their works.

Lowe & Kirk, in the foundry and machine business at Chattanooga, Tenn., have made an assignment. Liabilities, about \$50,000.

The Merrill & Houston Iron Works, of Beloit, Wis., made an assignment Nov. 26. The report is that the assets are largely in excess of the liabilities, and the business will probably be continued.

As illustrating the extensive use of link belting, we may mention the fact that the machinery of a mill at Worthington, Ind., is run almost entirely by link belting. It was supplied by the Lechner Mfg. Co., of Columbus, Ohio.

Says the *Age of Steel*, of St. Louis: "A feature of the belting trade this season has been an increase in the demand for large belts, due in part to the building of a number of extensive manufacturing establishments in the city and its vicinity during the year, each of which, in addition to large quantities of small belts, require driver belts of extra width and strength. The grain elevator companies have also assisted in giving prominence to the demand for heavy belts, they having placed a comparatively large number of orders for rubber belts, ranging in width from 22 to 43 inches."

SAN FRANCISCO WAREHOUSES.

The following named warehouses have been nominated by the Directors as regular city warehouses:

Hooper South End,	Hathaway's,
Beale Street,	Eureka,
Flint's,	Humboldt,
King Street,	Harrison Street,
Mission Bay,	North Point,
Occidental,	City,
South Point,	California,

Mission Rock, for wheat only.

Regular warehouses for the delivery of wheat only, when sold on "call" for P. C. delivery:

McNear's,	Granger's,
Nevada.	

OUR LAKE MARINE AND INSURANCE.

We have already referred in general terms to the exceptionally heavy storm damage to our lake marine during the navigation season just closed, and the consequent serious losses to the insurance companies, which, while encountering heavy losses, had only ruinously low premiums with which to meet them. The *Tribune* of this city has published an extensive tabular exhibit of the number and names of lake craft damaged during the season, with detailed information concerning each, by which it is shown that on the various lakes 282 vessels have been damaged, many very seriously, of which 85 went entirely to pieces and about 100 in all were practically destroyed. In the November storm alone, commencing on the 11th and lasting several days, the damage to vessels is estimated at \$1,000,000, or more than the combined loss of two previous years. It is estimated that the total damage to shipping for the season has been \$3,000,000, the number of lives lost fully 200, and that the premiums received by the insurance companies will fall from \$800,000 to \$900,000 short of the losses. The bitter war urged by the companies concerned, both in cargo and hull insurance, is well known, the ruling rate for the former being about one-third that of last year, and for the latter about two-thirds. Full rates would have scarcely made the companies whole, and as it is the losses over premiums are very serious. Speaking of hull insurance, the *Tribune* says: "Vessels that are rotten from keel to rail have been given a rating and risks taken on them. In proof of this, it is but necessary to glance at the year in which some of the vessels were built, as given in the table below. It is to be wondered at that Congress permits mercenary vessel-owners to jeopardize the lives of their crews by sending them out in unseaworthy craft, but the underwriters are also to blame in encouraging them by insuring their boats."—*The Investigator*.

Notes from the Exchanges.

The new Produce Exchange at New Orleans was dedicated on Saturday, Dec. 1.

On Dec. 4, E. A. Kent & Co. bought in a lump 500,000 bushels of wheat of Lane & Son, for January delivery, at \$1.13½. On the same day they purchased about the same amount in several lots. This was on the New York Produce Exchange, and is said to be the largest transaction in wheat ever made on the floor of the Exchange.

The Chicago Board of Trade fixed the price of membership tickets some time since at \$10,000 and restricted the number of members; but out of its 2,000 members there are always some of them wanting to sell their certificates, which are now obtainable at about \$2,600. The Baltimore Corn and Flour Exchange did the same thing when it raised the cost of membership from \$1,000 to \$2,500, and limited the number to 1,000. All the new members that have since been elected have purchased certificates at \$1,000 or less.

Says the Cincinnati *Price Current*: "The Grain Call Board on 'Change, this city, seems to have about 'pestered out.' The offers and bids for the past week have not averaged a dozen a day, and the sales are almost *nil*. When first started, a year and a half ago, there was quite a lively business on Call, but of late the falling off has been so marked that no one can fail to notice it. Whether its decline is to be attributed to awakened conscience, Turkish wheat, or other causes, the fact remains that the Call Board does not amount to much at present writing."

In Western markets they have, I find, a queer habit of saying "sold" when they mean to take stuff at the price asked just the same as when they sell stuff at the figures bid. While this odd method of trading would probably make very little difference were the parties concerned out of any other operator's hearing, it must naturally lead to more or less confusion when practiced at the calls or in the ring when perhaps a dozen others have orders to buy or sell the same option at the figures mentioned. For example, if A, B and C are buyers of January wheat at \$1.13½, or maybe sellers for some other customer at \$1.13½, it must necessarily be somewhat misleading to have D shout "sold" when he means to buy at \$1.13½ instead of sell at \$1.13½. Among the big traders on 'Change are several recently from the West who, of course, have not yet overcome the habit. Apropos to this subject I heard a laughable story about a party who recently arrived on the Produce Exchange from Chicago. He is, it appears, slightly afflicted with a devious optic and was consequently always in trouble through having several operators claiming to have made certain trades with him of which he was entirely ignorant. Owing to this obliquity of vision, A would say, "You were looking right at me when you said 'sold,'" and B would get mad and say, "When you said 'sold' you were looking *straight* at me," and then C comes up and says, "I'm blowed if he wasn't looking at me."—*Trafton's Weekly*.

SOME INTERESTING WHEAT-RAISING CALCULATIONS.

The mathematical reporter of this paper has been immersed in figures for some time past, endeavoring to get to the bottom of the wheat question, but finds the subject bottomless. He could go on with columns of numerals almost without limit, showing the different phases and oddities of our cereal trade, but a few examples will suffice to demonstrate its magnitude. Taking statistics and the judgment of our best-informed grain men for a foundation, the farmers of Eastern Washington and Umatilla, Ore. (which is really, by the laws of nature, a part and parcel of Eastern Washington), have raised this year 6,500,000 bushels of wheat. While we concede no country our equal in the production of grain, and while we claim that our average will be more than 23 bushels of wheat to the acre, that figure represents the average amount of wheat raised in the Red River country, and we will take it as a basis for Eastern Washington. Taking that figure, then, there were sown last fall and spring 282,521 acres. At 64 cents per bushel, the present market price, our wheat would, if all sold to-day, furnish the farmers with \$4,160,000 in cash. At \$7 per ton, the present freight rate from this section to Portland, we would pay the Oregon Railroad and Navigation Company \$1,060,619 for moving 151,517 tons to that point, the balance of the wheat, 1,500,000 bushels, being retained for home consumption. To carry off this grain a train of cars 63½ miles long would be required. This grain would fill 3,250,000 sacks, which would cost at current rates \$292,500. Laying these filled sacks lengthwise they would reach a distance of 1,539 miles. To haul this grain to the stations would require 101,011 two-horse teams, allowing a ton and a half of grain to the wagon; and if these wagons were in one continuous line, with no space intervening between the horses and the preceding wagon, it would make a train of 382½ miles.—*Walla Walla Journal*.

Over 200,000 Howe Scales have been sold and the demand is increasing continually. Borden, Selleck & Co., agents, Chicago, Ill.

THE AMERICAN ELEVATOR AND GRAIN TRADE.

Published on the Fifteenth of each Month by
MITCHELL BROS. COMPANY.

(INCORPORATED.)

OFFICE: Howland Block, 184 and 186 Dearborn St., Chicago, Ill.

Subscription Price, : : : \$1.00 per Year,
English and Foreign Subscriptions, 1.50 "

English and Foreign Subscriptions may be sent to W. H. Smith & Son, 186 Strand, London, W. C., Eng.

A. J. MITCHELL, - - - - Business Manager.
HARLEY B. MITCHELL, - - - - Editor.

Vol. II. CHICAGO, ILL., DEC. 15, 1883. No. 6.

ADVERTISING.

This paper has a large circulation among the elevator men and grain dealers of the country, and is the best medium in the United States for reaching this trade. Advertising rates made known upon application.

CORRESPONDENCE.

We solicit correspondence upon all topics of interest connected with the handling of grain or cognate subjects.

THE CROPS.

The Agricultural Department report on the condition of our grain crops, issued Dec. 10, states that the aggregate wheat crop slightly exceeds 400,000,000 bushels. The returns of corn production are less favorable than those of the two months previous, on account of injury to soft corn by warm, moist weather north of the fortieth parallel. Corn that has been cribbed is in a worse condition than for many years, and the proportion unmerchantable is large. The final estimate of the yield is twenty-three bushels per acre, or a few millions short of the total estimates of the previous returns. The inferior quality of the grain increases this (shortage in value. No investigations have as yet been made of losses from packing in mass, and after-harvest injuries from warm, wet weather. The total oat crop exceeds 500,000,000 bushels, and is four per cent. larger than last year. The yield of rye and barley are placed at a little less than .82; buckwheat is less by one-third than an average crop.

THE "FUND" SWINDLERS.

The trial of John Flemming and Frank L. Loring before the United States Court for fraudulently using the U. S. mails, was closed on Dec. 7 by a verdict, after an hour's absence of the jury, of guilty. The case was defended by Messrs. W. C. Goudy and Emory Storrs, representing the highest legal and forensic ability of the Chicago bar, and no means of legal technicalities or quibbles were omitted to defeat justice and set these swindlers free. The charge of Judge Blodgett on the doubtful points of principal and accessory; the actual creation or existence of the "fund," etc., were too clear for any reasonable doubt. A new trial has been demanded, and the prisoners were held to bail on the sum of \$10,000 each. The penalty for the offense charged is not less than \$500 or more than \$2,500 fine, and not less than three months' or more than eighteen months' imprisonment on each of the four counts of the indictment.

Those who read the voluminous testimony will have a clear idea of the nature of the crime, in no wise less than highway robbery, and of the ample evidence against those convicted. It will be seen that the "bucket shops" were hand and glove associated with the treachery and deceit used in giving credit to those bogus "Funds, H, K and W," and knowingly assisted in covering up the tracks of these robbers and aiding them in fleecing their silly country victims. There is evidence to show that the books of sundry "bucket shops" were manipulated to show losses when there were really gains. It is perfectly clear that the machinery of the Board of Trade could not have been made available for such

schemes of villainy. The period would have been brief before the directors would have discovered the scoundrels, and their names and schemes would have been flashed on the wires throughout the country. It is to be noted that the detection of these operations and the trial of the swindlers are due to the action of the United States officials, and not to those of our state or municipal governments. It would seem to be now the duty for our Legislature to use its wisdom in utterly squelching these "shops" that are publicly displaying their operations in defiance of the sentiment of all honorable men, or in driving them to the hidden dens of their brethren of the gambling guilds.

ST. LOUIS AND THE HENNEPIN CANAL.

The sentiment of St. Louis in regard to the Hennepin Canal, as represented by the repeated attacks of the *Globe-Democrat*, is antagonistic and to the effect that it is wholly a local matter and mainly for the benefit of Chicago "sewerage." The objective seaboard shipping point for the former city is New Orleans, while for Chicago and the vast traffic of the Northwest it is New York. The relative importance then of the improvements directed to increasing and cheapening the facilities for transportation to these ports can be seen by a comparison of their foreign trade. The report of the Treasury Department shows that for the ten months ended Oct. 31, the total exports of breadstuffs from New York were over \$35,300,000; while from New Orleans during the same period they were only about \$5,200,000 in value. It is also shown that this traffic at the latter point during the four months ended as above, was only about \$800,000 less than during the whole ten months, showing that the business is limited mainly to a small fraction of the year. In comparing the reports of the total exports of provisions and dairy products for the twelve months ended as above, the contrast is still greater; those of New York amounting to nearly \$60,000,000, against only \$71,415 from New Orleans. The meaning of these facts is obvious. Millions have been already granted, and untold millions asked, to improve the lower Mississippi in behalf of the Southern water route, while the small sum required for this important improvement of Eastern transportation, demanded in the interests of the immense and rapidly-increasing productions of the great Northwest, is spoken of by the recipients of the former bounties with jealous contempt as a "local" scheme, deserving no consideration.

The views of the St. Louis assailant have received an echo from the *Des Moines Register*, apparently "jealous of the Mississippi River towns," to which the *Press* at Iowa City, the former capital of that state, gives a spirited rejoinder. The writer says: "Chicago is the place of exchange for the grain and produce of Iowa; strictly speaking, it is not the market. Iowa producers offer no complaint as to freight east of Chicago; if freights can be cheapened from the Mississippi to the Lake, that is what Iowa wants. * * With this Hennepin Canal in operation, Keokuk, Burlington, Muscatine, Davenport, Clinton, Dubuque, McGregor and Lansing would take on an added life. They would become the ultimate points of rail shipments for Iowa produce East-bound, there to be transferred to barges for Chicago. Iowa alone could pay for the canal in five years. * * * We don't care if it makes Chicago a greater city than London, and Des Moines as howling a waste as Babylon—the people of Iowa want cheap freights."

An interesting and beautifully illustrated pamphlet, by B. F. Tillinghast, has been published at Davenport, Iowa, relative to the "Three Cities" and the Rock Island Arsenal, that presents facts showing the growing need of this projected canal improvement, both to these thriving localities, with their extensive commercial and manufacturing relations, and the general government. Within a radius of twenty-five miles in these three cities, 60,000 energetic people reside, commanding boundless facilities for manufacturing in their accessibility to material and water power.

The United States Government has already constructed a water power of nearly 4,000-horse power, of which Moline, styled the "Lowell of the West," owns one-fourth. Lt. Col. Flagler, of the Ordnance Department, commanding, has given great attention to the subject of extending the water power wing dam across the river, for the benefit of the water power and navigation. By means of perfectly feasible plans the water power, he says, could be quadrupled in capacity, while it would benefit navigation by enabling vessels to pass the rapids in all weather, and at all times of the night, and all stages of water. The Colonel says: "If the Hennepin Canal should enter the river at any point on the rapids above Rock Island, this improvement of navigation on the rapids would be of the highest importance."

ELEVATOR MONOPOLY.

In Manitoba, and our own Northwest, a good deal of dissatisfaction prevails among farmers, and the portion of the business community dependent on them. The allegation is made that the railroads, the millers, and the grain dealers are in league to keep down the price of wheat. In Manitoba these alleged combinations, coupled with the land question, have almost led to revolt from the Dominion Government. On our side of the line the claim simply is made that the railroads "stand in with" the Millers' Association of Minneapolis, and with certain large grain dealers, so that competition in the buying of grain in certain territory is impossible.

There is little doubt that the farmers of Manitoba have a just grievance in this particular, and the same may be true of certain portions of Dakota and Minnesota. Competition in grain buying is not a good thing for the grain buyer who bids the price up to a point where there is no money in it for himself. A monopoly formed to keep the price of grain down is a grievance of which farmers may justly complain; but the absence of competition at a given point does not necessarily imply that the price is being kept down. At any rate, the farmers of the Northwest evidently intend to get at the bottom facts this winter.

DRYING THE CORN.

While the yield of corn is larger than was anticipated a month or more ago, a good deal of it is not in a very promising condition. This is true of much of the crop all over the West. In many parts of the country the corn is damp, and unless precautions are taken the cry of "hot corn" will soon be heard from elevators everywhere. We would not attempt to raise an alarm on the subject, but would suggest that grain men exercise a good deal of caution in this matter and take such measures as will guard them from loss in this particular. No doubt most of the damp corn can be made merchantable by artificial drying, and this apparently will have to be done. There will undoubtedly be quite a demand for grain dryers this winter, as in some sections the entire crop will need drying before it will be merchantable.

SAN FRANCISCO, now that the low price of wheat has made the freight market unprofitable to ships there, which are seeking engagements elsewhere, is watching with interest the course of the Southern Pacific as to the promised cheap freights. Mr. C. P. Huntington, the magnate of this road, recently stated to the Common Council of New Orleans that the Southern Pacific proposed to compete with the ships around Cape Horn for the carriage of over 42,000,000 bushels of California wheat annually. He had already made arrangements with foreign ship owners to put on a line of the largest class, fastest steamers to run between that city and foreign ports at regular dates. He also stated that he had bought extensive coal deposits on Puget Sound, and would supply San Francisco with fuel in place of that from New South Wales, which would cease to come when wheat freights were closed to the Anglo-Australian sailing vessels.

Editorial Mention.

THE Northwest and West will surely have another great railroad war, it seems.

WHEAT AND CORN have enjoyed a regular boom and the bulls once more have gored the bears.

CORN seems to be regarded as good property to hold by some of the wise heads of the Board of Trade.

ELEVATORS still continue to burst and pour their contents on the ground. We have had our say on this matter.

It seems that Detroit must bear the disgrace of being the home of all the rascals connected with the "club" and "fund" swindles in this city.

MR. FRANK L. THOMS, of Neche, Dak., in renewing his subscription, says: "I think your paper is a valuable one for elevator and grain men."

THE *N. Y. Produce Exchange Reporter* justly remarks that wild estimates as to our production of cereals produce yearly a vast amount of mischief.

MR. BRINTON WALTER, of Christiana, Pa., writes: "I find the AMERICAN ELEVATOR AND GRAIN TRADE a necessity, and will not do without it."

THE acreage of Illinois winter wheat is 2,752,750 this year against 2,905,085 last year. The condition at this time, however, is better than at the same time last year.

THE Nevada warehouses, just completed at Port Costa, Cal., are over half a mile in length. They are the largest in the United States, having a capacity of 4,000,000 bushels of grain.

CANADIAN millers who import American wheat to grind in bond for their export trade are now credited with the duty on four bushels and forty-five pounds to the barrel of flour, instead of 4-35 as heretofore.

A REVISION of grain rates was made at the late meeting of freight men in Indianapolis, representing Indiana, Illinois, and Ohio, by which Indianapolis hopes, in the future, to compete more successfully with Toledo, Chicago, and St. Louis.

WE direct attention to the advertisement of the Wellington Belt Holder, made by W. R. Santley & Co., of Wellington, Ohio. It is cheap and effective, and would seem to be a great desideratum in all institutions where belting is used.

As will be seen from the announcement made in our advertising columns, W. H. Applegate, of Atlantic, Iowa, is building one of his dryers in the elevator of Marsh & Speer at Joliet, Ill., with a capacity of twenty-five carloads per day. The practical operation of the dryer will soon be open to inspection by grain men.

A ST. LOUIS paper, in speaking of the new elevator to be built at Duluth this winter, says: "The elevator, the proprietors say, will have a capacity of 50,000,000 bushels, to be completed and filled with wheat before the snow disappears next spring." The daily got in a redundancy of ciphers in the elevator's capacity.

MEXICO, from the standpoint of a dealer in machinery who has recently visited that country, is not an inviting field for trade. The demand for hardware is limited mainly to "bowie knives," and a man who cannot eat "red pepper and boiled goat" better stay away. The machinery trade, he thinks, of a single county in one of our Western states is worth more than that of all Mexico.

PARTIES contemplating putting in a grain dryer should notice the card of Messrs. Hersey Bros. of South Boston, Mass. Their steam dryer has now been in use for a number of years, and has been used in situations calculated to try the capabilities of any dryer.

MESSRS. NORDYKE & MARMON Co., of Indianapolis, have received official notice that they have been awarded, and the award approved, a medal for the "Best Display of Flour Mill Machinery," at the Southern Exposition at Louisville. Their exhibit was a good one, and merited substantial recognition.

PARTIES looking for good elevator property to buy, should read the announcement made in the column "For Sale," by Messrs. Porter & Co., of Hepburn, Iowa. The property offered for sale is in one of the best locations in Iowa, and is offered on account of the other interests which the advertisers have in the South.

G. I. BAILY, West Point, Iowa, in sending his subscription, writes: "I find valuable information in your paper." In reply to a question asked by Mr. Baily we may say that the pamphlet "Congested Prices," mentioned in our August issue, is published by Jansen, McClurg & Co., of this city, and the price is 65 cents.

AMONG our callers the past month was Mr. J. F. Johnson, of Johnson & Field, the well-known manufacturers of Racine, Wis. Mr. Johnson said that trade had been excellent, and speaking of their Dustless Grain Separator said that every one who had given it a trial was more than pleased with it, as shown by flattering letters which they were daily receiving from customers.

THE United States Circuit Court at Milwaukee, Wis., has now on trial a suit brought by Jas. H. Easton and A. E. Bigelow, of Iowa, vs. L. F. Hodges & Co., grain commission dealers of that city on two counts: First that W. H. Valteau, of Decorah, Iowa, shipped 10,000 bushels of wheat to defendants, which belonged to plaintiffs; second, that said Valteau shipped the same amount of wheat which was held as security for loans made by the First National Bank of Decorah to defendants. The latter sold all the wheat. In 1879, on a trial of the case before Judge Dyer, the plaintiffs obtained a judgment for \$12,826.24. On appeal the United States Supreme Court ordered a new trial. The claim is for \$20,000 damages.

DEALERS engaged in the Indian wheat trade say that the grain arrives at the seaboard from the provinces in a much cleaner condition than that in which it reaches foreign markets. The native consignees, it is said, keep stacks of wheat dirt, separated from former consignments, and have learned the art of "mixing;" higher rates for cleaned wheat do not supply inducements equivalent to the profits in these mixed varieties. They are willing to sell dirty wheat and then clean it. This dirt actually forms an article of traffic among them. English traders in India have suggested that an act should be passed making these dealings criminal and compelling the burning of the dirt as soon as separated from the grain.

A REPORT from Buffalo says: "The total receipts by lake of grain at this port during the season just ended were 64,622,090 bushels, against 50,833,590 bushels for last year, showing an increase for 1883 of 13,788,500 bushels. Of flour, this year's receipts were 2,071,570 barrels, against 1,199,350 barrels in 1882, a gain this year of 872,220 barrels. Lumber receipts this season amounted to 233,433,000 feet, against 248,196,000 feet last year, a decrease for 1883 of 14,763,000 feet. Coal shipments by lake this year footed up 1,253,940 tons, against 1,027,500 tons in 1882, a gain for this season of 226,440 tons. The amount of grain shipped by the Erie Canal this season was 42,350,920 bushels, against 29,439,690 bushels for last year, showing an increase for 1883 of 12,911,230 bushels. The number of boats cleared this year was 6,793, against 6,613 for last year."

THE part which perforated sheet metals play in the handling of grain and other raw material is well understood. There is not an establishment which handles grain that does not use perforated sheet metal to a greater or less extent; and from developments of late years it would seem that the field in which these articles can be used is almost limitless. Probably the best-known firm in this business is the Harrington & King Perforating Co., Nos. 43 to 51, So. Jefferson St., Chicago. This firm manufacture and sell a great variety of these metals for all conceivable purposes; and by the use of improved and special machinery, are able to quote very reasonable prices, both to grain men and the trade. They will be pleased to furnish information, prices, etc., on application.

THE GRADING of corn in this market has again become a subject of complaint against the inspectors on the part of receivers and shippers, as active speculation has raised the price of No. 2 corn ten cents above the "rejected" grade, which before was only two or three cents lower. The Committee on Inspection recently examined the corn and decided that the receivers were right. The *Tribune* says that the inspectors are believed to do their duty, as far as practicable, justly; but this is difficult and presents occasion for honest differences of opinion. There is a great deal of "line" corn, brought in too good to be graded as "rejected," and not quite good enough for No. 2; and no matter what the decision be, one side will be dissatisfied. This difficulty is increased by the recent rule making only perfectly dry, new corn No. 2, and corn with any degree of dampness as "rejected," owing to the risk of its spoiling in storage. The Inspection Committee is equivalent to a state court of appeal, and its decisions are valid and not liable to be improperly influenced.

ONE of the methods by which some of the members of the Chicago Board of Trade are said to advance their pocket interests at the expense of the honor and reputation of the Board, is by the violation of the established rule as to commissions, allowing dealings between members to be made at the rate of one-eighth per cent., but requiring a charge of one-quarter per cent. in transactions for non-members. These brokers misconstruing or ignoring the rules, accept the membership or lower rates, sometimes charging no commission at all in dealings for their country patrons. This course is based on the theory that in "nine-tenths" of such deals the country loses, and taking the business into their own offices they pocket the entire margins, thus playing a bucket-shop game on the floor and with the aid of the Board. The attention of the directors has been urgently called to this scandalous violation of the rules of the Board, in cutting commissions, which is far more damaging to its credit and honor than the "bucket-shops" that they are so eagerly and properly trying to squelch.

JUDGE TULEY of this city recently rendered a decision in the case of E. C. Cole vs. Johnson & Co., Brokers on the Open Board, brought to set aside a judgment in a suit of common-law for \$800, due on losses in deals and for commissions. The plaintiff claimed that these were "gambling" contracts according to the Revised Statutes, and therefore illegal. Judge Tuley decided that the court in equity could not go behind the action in common-law when the contracts were not in question as to their nature, and no defense had been made in that regard. The contracts were settled as soon as the losses were paid, and the only question at law was whether the brokers were entitled to recover from Cole the sum paid out; the judgment was founded on the implied promise of the latter, and it was immaterial whether the contracts were void or not. Cole had made no such defense, and a court of equity could not help him, except by express statute. The statute in question gave no power to set aside judgments on collateral contracts growing out of the original gambling contract; they could be set aside only when by fraud, accident, or mistake, the defendant had been prevented from making his defense at law. The bill was dismissed for want of equity.

PROTECTION TO BRITISH GRAIN.

At a recent meeting of the National Fair Trade League in London the subject of discussion was, England's position in respect to her food supplies, considered under the resolution: "That our growing dependence for food upon foreign production, without any corresponding return in trade, is fraught with danger to the nation." Although free trade had its advocates in the discussion, the prevailing view was that this policy had been carried too far, and that the grain production of the United Kingdom required protection, as also reciprocal favorable legislation in the Colonies, which were capable of supplying the entire food deficiencies. The chairman stated that a wide-spread dissatisfaction existed, and that the country was not enjoying those great benefits that free trade had promised; while he thought its promoters must admit that in the negotiation of commercial treaties a very one-sided system had been thrust upon the country. It was felt that a large proportion of the trade was abandoning the country, and the industrial classes were asking the "reason why." The chairman thought it injudicious to place a tax upon the food of the people; a mere scheme of this kind would be opposed by the great majority. But he desired to see a real free trade inaugurated with the Colonies, and a consolidation of interests obtained. A tax on imports was admittedly necessary for the support of armies and fleets, and these taxes on tea, etc., were really burdens on the English household. He had no fears, however, as to the danger the old protectionists held out of the food supply being cut off in case of great wars. The Empire was too great, its resources too large for any war to overcome England's mastery of the seas, or prevent her obtaining sufficient food for her teeming millions.

In the discussion the following were among the statements and views presented: America, Germany, France, and Russia had all adopted protection, and their commercial prosperity had steadily increased; that of America in the greater ratio. Steam and manufactures had been the main factors in British success hitherto, not free trade. But now the exports of the country were diminishing, and from \$1,165,000,000 in 1875 had fallen to \$875,000,000 in 1882, while nearly 1,000,000 acres of wheat land had gone out of cultivation. Said one member: "With a population increasing at the rate of 7,000 a week, without any increase in manufactures or food supplies, the question was becoming one of serious importance."

A working man said that the purchasing power of money was less now than in the days of protection; and he protested against a tax on manufactured goods unless foreign grain was also taxed. Exports had not increased in proportion as grain and provisions came in, as had been predicted, but had decreased. A higher loaf might be well accepted with cheaper rents, and an increase of employment and of working-men's incomes. It was urged that home wheat-growing ought to be stimulated, as its decline would be followed at length by the increased price of bread. If fair wages were given, it is said, American wheat could not now, with the expense of transportation, compete with the home product.

As a matter of fact, shown by statistics, it was stated that since 1840 the country had become gradually less and less capable of producing bread for her people, owing, not to the deterioration of the soil, but to the marvelous growth of population. This deficiency had been met until 1872 by the increasing sales of industrial products. But since then the food-producing capacity had decreased, while with the British markets open to food, and those abroad closed to its industrial products, these, too, had declined. It was the object of the Fair Trade League, it was said, to oblige these foreign ports to introduce real free trade by adopting a home system of protection. Differential duties in favor of the Colonies were advocated; the latter in return giving British manufacturers an advantage of five per cent. over those of other countries. It was observed that the quarrels of continental nations were liable to disturb the price of wheat to the extent of 25 per cent., while the capacity of the British possessions

to supply the mother country was almost limitless.

Those who still advocated the free trade policy in grain attributed the present agricultural depression to the grievances of tenant-farmers, and the lands imperfectly tilled or thrown out of cultivation. An advocate of free trade pointed out as one means of increasing their food supplies a more economical use of those already had. One-tenth, he said, of the producing power of the country was absorbed in the production of intoxicating liquors. The resolution was unanimously adopted, but no definite action was taken on the special questions presented.

THE RAILROAD QUESTION.

A member of the New York Chamber of Commerce has recently written a letter to the *Commercial Bulletin* in reply to some strictures of the latter upon certain recommendations in the report of a committee of the Chamber on government supervision over railroad transportation. The critic objected, it seems, to the intervention of state and national commissions in this matter, upon the ground that it is better to use the machinery of the courts to correct abuses. Referring to the fact that the commission system works well in England, the *Bulletin* claims that the conditions there, from almost every standpoint, are entirely different from those in this country.

In reply, the "member" admits that the interstate trade here creates entirely different conditions from those in England, where Parliament is omnipotent, and one law regulates all railroads. But, he claims, Congress has the same right here to regulate interstate commerce that Parliament has, only that the laws of the various states must be harmonized with those of Congress. But otherwise the conditions and grievances that appear in the English railroad systems are the same as in ours. The investigations leading to the formation of the English Railroad Commission by Parliament present the same questions and complaints as to discriminations in favor of localities, favorite shippers, etc., and the same replies of road managers as with us. While the government should interfere with trade and commerce only to protect the rights of citizens, the writer says: "Any government which is not strong enough or courageous enough to adequately guard common rights, is unworthy of its name." The following example is taken from the reports referred to:

"Rate from New York to San Francisco by Union Pacific Railroad, \$2.25 per hundred; do. do. to Salt Lake City, \$4.95; do. do. to Ogden City, \$4.66; do. do. to Dillon, Montana, \$3.45. San Francisco is 850 miles beyond Ogden City. Dillon is 400 miles beyond Ogden City." The Chamber characterizes this as flagrant injustice, and is of the opinion that a federal commission, endowed with adequate powers to correct this abuse, is the proper remedy. In meeting these great railroad corporations with their staffs of trained lawyers employed by the year, whose policy is endless delay, with all the power of unlimited purse, and the ablest legal talent, the citizens at any point are at an immense disadvantage; and aside from expense it would not be possible under ten years to procure a final decision." There is no force but the strong arm of the government, honestly and fearlessly administered, which can match the power of these corporations, which, up to this time, have been successful in moulding legislation at their will, and in either controlling the decisions of the courts or finding methods to thwart such as might not be agreeable to them.

The writer also refers to a moral phase of this subject, not noticed in the report. It is a well-known, though curious fact, that men of wealth, conspicuous in church and society for their honor and integrity, when acting under the shield of corporate responsibility [irresponsibility], give their sanction to measures such as would not be tolerated in their private business. The corporate conscience seems to be regardless of common honesty, pursuing courses that in private transactions are styled "frauds and thefts."

MARINE INSURANCE ON THE LAKES.

The Northwestern National Insurance Co. of Milwaukee, Wis., addressed a circular letter to the insurance companies doing lake marine business, on Nov. 5, relative to a plan for a general pool for cargo business on the lakes. This paper states that the result of such a pool, made for the business of 1879, in which the agreement was not signed until late in the spring, after a long list of absurd contracts were made, was that the companies made about \$225,000. Since then eight prominent companies named and others have retired from the business because of the want of profit in it. A lake board of underwriters, it says, would be useless, because unscrupulous men will pay a drawback, that with other bad practices make it impossible for companies acting honorably to have a fair deal.

The object of the circular was to lay the project before those addressed for a general pool for 1884, which if assented to by a reasonable number, could be adjusted in its details. A general commissioner, located at Detroit, and the plan of the pool of 1879 improved so as not to antagonize the agent, and each agent to get 10 per cent. on his own business, is suggested as promising success. The company state that they are in earnest for a general cargo, and even a general hull pool; but being in an independent position they will, in any event, act entirely independently of all local organizations.

On Nov. 15 a second circular was put forth giving the replies to the former as follows: After ten days waiting, of the twenty-three companies addressed, thirteen have replied favorably; nine have made no replies, and one opposed the pool. Of the seven general agents addressed, one was doubtful, one opposed; two were in favor of the pool, and three made no reply. This makes it apparent, the circular says, that the opposition renders it impossible to form a general pool. After further reasoning as to the value to the companies of this scheme, the company state that they know that the manner of conducting the wrecking business on the lakes is, almost without exception, a fraud on the companies. The connivance between wreck masters, captains, dry docks and the vessel owners, render much higher rates necessary in order to make any profit. "When the companies decide to conduct their own affairs in their own way, then there will be no trouble in coming together and getting three times the premiums that were obtained in the season of 1883 on a like amount of business."

DEALING IN FUTURES.

The recent decision of the Supreme Court of Georgia was undoubtedly aimed at speculative ventures of the "bucket shop" order, properly regarded as gambling. As summarized, however, by the press reports, its purport was to place in the same category all dealings in "futures," and to stop them by legislation and legal procedure. This has been clearly shown by the most staunch opponents of so-called "option dealings" to be impracticable, or if not so, to be utterly subversive of all the modern machinery of exchange and traffic and their immense unquestioned advantages. The papers of well-informed, able writers on this subject, that have been published during the past year in the columns of this journal, such as "The Law of the Grain Exchange," "Corners and Sales of Merchandise for Future Delivery," "Making Bread Dear," etc., fully demonstrate this proposition. The "future" enters into every business transaction of any importance. The farmer makes a contract with mother nature and pays his advance of labor, seed, etc., in anticipation of a "future delivery" of grain. The old dame sometimes fails to make returns and simply leaves her "margins" in the enriched soil for still further future ventures.

Our Boards of Trade and great exchanges are the natural development of the vast demands of trade and commerce in our day, stretching out their arms over oceans and continents, seeking its products and their sales in all the markets and granaries of the world. They are vast centers of

knowledge, that throb through the electric nerves of communication of the globe, bringing within immediate hearing the conditions in those widely separated regions, on which prices and contracts are based, giving confidence to capital and sending it out to purchase and transport through the innumerable arteries of commerce, these products on which the lives and progress of people and nations depend. The foundation of these great commercial exchanges, without which they could not exist, rests upon these contracts relative to purchases and sales for "future delivery." Some other method must be found to check the evils of speculation, whatever they may be, and especially to destroy the power of accumulated capital in the hands of unprincipled men, to make "Aggressive Corners," in dealing with the grain and breadstuffs of the race, than cutting off the roots of our entire commercial system.

INDIAN WHEAT.

In the present depression of the wheat markets of the world, in spite of the general large shortages of crops as compared with that of last year, the question of competition becomes of greater importance to the American farmer and grain dealer. It is stated that the exports of wheat from India during the first five months of this year have been about 28,000,000 bushels, as against about 10,000,000 during the same period of last year. The *Chicago Tribune* refers to the tests made, not long since, by the McDougall Bros., millers and bakers of London, Eng., at the request of the Indian Department, as to the comparative value of the Indian wheats in flour and bread-making. The average weights per bushel of Indian wheats were from 60 to 64 pounds, against 61 to 61½ pounds for American, and the yield of flour was larger, being from 73.2 to 80.52 per cent. against 69.5 to 73.8 per cent. from our wheats. But the percentage of gluten in the Indian wheats was much less, being from 6.4 to 13.4 per cent. against 8.7 to 15.3 per cent. in ours. Made into bread, the Indian flour produced from 365 to 376.6 pounds from the same quantity of American flour producing only 346 to 364 pounds of bread. But the color, taste, texture, and general characteristics of the latter were far better. These tests were made with American winter wheats, and the results in bread are not as favorable as those obtained since by a prominent Scotch baking firm. The general conclusions of the McDougalls' report are not very favorable to the Indian wheats which have a beany, aromatic flavor, while the flours are ricy, the texture of the bread too close, and the crust hard and brittle. Their principal value is in mixing with better varieties, such as the "American."

As to India's capabilities in wheat production in the race of competition, Mr. Mattsen, our Consul-General at Calcutta, says that the average cost to the farmer there is 60 cents per bushel. The Great Indian Peninsula Railroad directors state that the margins between the cost of wheat in the provinces and at the seaboard, and between the latter and those of the British home markets differ too widely to be greatly influenced by any slight decrease in railway freight rates. The wheat, say the directors, is inferior, and India "is incapable of supplying any considerable proportion of the wants of Europe."

The Bombay Chamber of Commerce do not accept these conclusions, and claim that with reasonable facilities the Indian wheat trade would assume far larger proportions than at present. They say that the history of the trade proves that India is as much a wheat-exporting country as America, and that the recent advance in the trade is due entirely to railway extension. The Chamber place the total yield of wheat in India at 6,500,000 tons, of which 1,000,000 are available for export. The country is easily capable, they believe, of doubling these figures, and of producing over 430,000,000 bushels of wheat, with a much larger proportion than above mentioned for export, as the natives are not large wheat consumers. And yet it would seem, from the Chamber's estimates, that India now consumes over 183,000,000 bushels of wheat, and as in the case of the freed serfs of Russia, will not there be a vast pro-

portionate increase of wheat consumption there, as with new railroads, improved machinery, and higher cultivation of the soil, civilization advances?

Our opinion is that Indian competition is but a drop in the bucket among the causes of the present depressed prices. The world's commercial exchanges are, for various reasons, in a state of liquidation. In this great clearing house movement where this vast commercial "co-operative" system is taking account of stock, manufactures and traffic of all kinds are held in check. Millions of families are, by compulsion, economizing their expenditures, and uncounted millions, perhaps, are not only discounting but utterly wiping out their accounts due to the consumption of the wheaten loaf. Probably if a fair comparison were made between the conditions of the employes of the wheat grower, grain dealer, and miller, and those of the great staple manufacturers and merchants, the bread-makers would hardly exchange places.

THE ERIE CANAL.

The close of navigation on the New York Canals on Dec. 1 is the occasion for the *Commercial Bulletin* to present a statement of the season's results. There have been no extraordinary breaks, while the taking off of tolls has been to the benefit of the boatmen, who have kept up the old rates. There will be a smaller number of vessels shut in by ice this year than for any season for years. The total number of boats cleared during the season was 6,796, against 6,571 in 1882. The following is the quantity of grain carried:

	1883. Bush.	1882. Bush.
Wheat.....	17,824,272	19,506,766
Corn.....	18,472,004	8,618,045
Oats.....	2,949,375	565,877
Barley.....	541,773	316,297
Rye.....	2,821,780	677,395
Total bushels.....	42,209,204	29,690,798

The quantity of flour carried was 4,349 barrels, against 6,918 in 1882, while the total receipts of flour at Buffalo in 1883 were over 2,000,000 barrels, and in 1882 about 1,800,000 barrels. The total amount of grain received this year was over 65,300,000 bushels against about 48,850,000 last year. This shows a remarkable increase in the grain traffic at Buffalo, which has now several new railroad outlets. The Legislature, it is said, will be urged to release the farmers of the state from the canal tax. Gov. Cleveland, in an address to the New York Chamber of Commerce recently, indicated his belief that the commercial interests of that port should bear the whole burden. "Such a proposition," says the *Bulletin*, "is as preposterous as it is impracticable."

MR. McLAREN, of Milwaukee, Wis., one of the most prominent and energetic grain dealers of the West, well and widely known for years, has decided to retire from business. He is still in the full tide of success and activity, but considers that he has made enough and can now enjoy *otium cum dignitate*, with satisfaction. This is a rare example among such men, who seldom in the whirl of business are wise enough to stop before their vital forces are exhausted, or who, after long years of its excitement, can find happiness outside of its eager pursuit, in the quiet of home and new vocations. But to those whose tastes permit, and who are public spirited, the opportunities thus afforded to make their experience helpful to the rising generation of those who are to fill their places are very great, and should be attractive.

A PAPER in this city, alleged to be published in the interests of the grain and provision trades, speaks thus of the conviction of Flemming and Loring by the United States Court:

This is a case that has excited more than ordinary interest even for a criminal case for obvious reasons, and the verdict gives general satisfaction, and is a warning to all who are engaged in a similar doubtful business. We will comment more fully upon this case in our next issue, but now take occasion to say that the verdict is certainly a proper rebuke to those who indulge in

doubtful methods and unlawful measures to increase their own wealth.

All of this is just and proper; but may we ask why this same paper that now denounces these swindlers, advertised and puffed them when they were engaged in their nefarious business? This alleged grain paper even continued to advertise them after the parties to these criminal practices had left town to escape public indignation. Denunciation comes with a bad and suspicious grace from such a source.

CONDITION OF WESTERN CORN.

The situation is practically unchanged in the states of Illinois, Indiana and Iowa. With a few minor exceptions, corn is reported as soft and unmarketable to an alarming extent—some of it, indeed, being unfit as food for stock. The mild weather of the last few weeks, coupled with more or less rain, has prevented its hardening, and therefore rendered it unfit for the crib. Much corn already in crib had to be removed and spread out to dry, while some which was shelled and shipped swelled so rapidly that its removal from the cars was necessary. A large percentage of the corn in the three states named is still in the field unharvested, and its utilization is likely to prove difficult. In some localities the warm weather, in the absence of rain, has had a beneficial effect; but this seems to have been the exception rather than the rule. Kansas, which two weeks ago furnished such sunshiny reports, now sends out news of a less encouraging character. In the northern counties a considerable portion of the crop is soft, having been damaged by a long dry spell in September and frost in the following month. The yield will fall short of expectation, but, summing up the general situation, Kansas will send to market a fair amount of sound corn. What has been said of Kansas applies equally well to Nebraska. While neither yield nor quality is meeting expectations, still there is no serious complaint. The planting of corn in Dakota this year was largely experimental, but the results seem to have been satisfactory, and we may look for an immense acreage next year. The general tenor of the dispatches from the entire belt is of a gloomy character, and many farmers appear to be justified in holding fast to all the good corn in their possession for the purpose of preventing a scarcity of seed in the spring.—*Chicago Tribune*.

CLOSING THE CANALS.

As soon as the official announcement was made that the Erie canal would close in December, the managers of trunk lines of railroads assembled in council for new pool combinations. The winter season is their opportunity to advance freights, as there is no opposition from inland water transportation. After a recent meeting of the trunk lines in this city it was reported that all of them had entered the pool and the schedule of rates would be uniform. This is not agreeable news to shippers, who, in that case, will be compelled to pay the rate of winter toll that the roads see fit to exact. If there is any one argument that has distinctive force in regard to maintaining our inland waterways in a state of high efficiency during the season of the year they are open, it is this quick advance of freights by the railroads as soon as winter begins. This shows how soon the public would be at the mercy of these carriers if the canals were allowed to dilapidate. This matter of freight charges is one of public importance, for it has immediate connection with our entire inter-state commerce, as well as our chief exports of grain, cotton, breadstuffs, petroleum and provisions. When competition is open the public are not compelled to pay excessive freight charges, but when gigantic pools are formed, which virtually combine all trunk lines under one system, it is then the interests of the many are in danger of being sacrificed for those of the few.—*American Grocer*.

RUBBER BELTS IN ELEVATORS.

I have noticed that grain elevators use rubber belts almost exclusively. The other day I asked the representative of a rubber belt company the reason for this. He replied that it was because rubber belts were just as good as leather belts for carrying the grain and were cheaper. I next asked a leather belt maker. He said that the elevators used rubber belts for the reason that strong belts were not so much needed as wide ones; that the belts had to be wide so that large cups could be attached to them, and that leather belts of this kind would be too costly.—*Age of Steel*.

The first intimation of a verdict for plaintiff in a suit on what the courts usually term a gambling contract was given recently in the case of Geo. Milliken, of Portland, Me. In July, 1882, Mr. Milliken sold, through an agent 20,000 bushels of wheat at this city. Wheat advanced and the agent, after failing to find Milliken and secure more margins, closed the deal at a loss of \$1,200, which Milliken refused to pay, and suit was brought. The jury found a verdict for plaintiff for \$118.20, the difference between the margin supplied and the lowest point reached by wheat at the time the deal was pending.

THE BOSTON ELEVATORS AND FIRE HAZARD.

CORRESPONDENCE OF "INSURANCE WORLD."

The excitement here over the investigations from the Insurance Commissioner's office and the political agitation, has subsided, so that affairs are again running in their accustomed channels. Recently there has been a little talk concerning the right construction of our elevators, of which the two most modern are the Hoosac Tunnel and the New England houses. The Hoosac Tunnel elevator deserves careful examination, and will form a good text for a commentary on better construction. It is located on Water street, Charlestown, being about 165 by 75 feet in size. The first story is 23 feet high and of brick, the second story is wood, slated, height 115 feet, so that the building forms a prominent landmark in the harbor, having a total height of 138 feet. The house contains 90 bins, with a storage capacity of 600,000 bushels. Adjoining the elevator is the frame building for the grain-conveying belt, communicating by a battened door covered with jointed tin. In different directions the belt galleries, of wood, and about six feet square, extend over the roofs of the three pier sheds from 300 to 500 feet, forming admirable conduits for fire against the tinued door. The elevator building communicates by D. I. D. with the engine house, containing two powerful engines; and west, across a driveway of thirty feet, are the boilers, entirely detached.

The private fire apparatus consists of two large Knowles hydraulic pumps, in daily use for operating the hydraulic freight elevators in the pier sheds, one inside stand-pipe, 350 feet of rubber-lined cotton hose, attached in 50 feet lengths to standpipe, and provided with nozzles; and from each station electric signal bells to the engineer, which are tested night and morning. Also three to six fire pails on each floor kept well filled. The superintendent claims that the engineer can flood either of the elevator legs, and that either hydraulic pump can be converted into a fire pump by turning a valve. There are no chemical extinguishers, and there is a remarkable absence of casks of water, considering how rarely a fire pail can be found. One night patrolman passes through this large building, but does not carry any watch-clock. Including the fireman at the boilers, and the watchmen on the piers, there are seven men who would rally in case of a fire at night. The main driving belt is 42 inches in diameter, running in a brick shaft, and between the belt rises a circular iron stairway, which forms the only means of access to the upper stories, excepting the contiguous hoisting platform. Two millwrights are constantly employed, and the bearings are carefully oiled every day. The dust and dirt are daily swept up, and one practice of great benefit is the use of a light packing at the grain spouts, which is supposed to prevent the escape of dust. On the other hand sweepings and dust are heaped on the second floor, and accumulate until sufficient quantity is obtained for profitable removal.

The lighting is done by open gas burners, the wooden posts behind the burners being tinned, and common railroad lanterns are in use. On the street side of the first story the windows are provided with tinned wooden shutters. The visitor obtaining permission to go through the elevator building will be taken upon the hoisting platform to the top of the house, where he has an admirable view of Charlestown and Bunker Hill monument. If privileged to go alone he will understand how entirely he is cut off from assistance in case of fire; as there is not a single fire escape on the building, no fire department could reach him, and the platform has descended. He finds one or two workmen on the different landings, or there are many narrow floors in the one lofty story. The place is clean and well-swept, the hose appears in good order, and in the center of the house a narrow stairway is found, by which, through about four flights, he descends to the top of the elevator bins, but finds no egress. Again he mounts two flights, and descending on the other side, he finds the grain is being discharged upon the conveying belts; no workman is at hand, the dust escapes through the packing and lies about an inch deep, the accumulation of the afternoon; and in that stifling atmosphere the inquiry comes, What would happen here to a man stricken with panic? Turning back and passing from the center of the house to the western end, he finds the head of the circular staircase, and as he passes down the iron steps he has plenty of time to think of the effect of fire upon that 42-inch driving belt, and the injury which would be inflicted by the parting of it. At last he emerges upon the substantial second floor, and speaks with satisfaction of the admirable storage arrangements for grain. One fixed conclusion remains in his mind: That a fire must not occur in that house among those upper lofts of wood, for no workman would stay where he has not external escape, and for his life he must rush to the center of the house, and then pass back again for 80 feet to a long and winding stairway. If a sudden puff of smoke filled the center of the house then any workmen engaged upon the eastern bins would never escape, and, as at the burial of Sir John Moore, "Few and short were the prayers we said." And this is supposed to be one of the best grain houses in America, and its management insists that every proper precaution has been taken to prevent the spread and origin of fire.

As an elevator, the Hoosac Tunnel house is better conducted than the average country house, and among those of the East it may stand as a giant. But the question comes whether this is the best and safest construction. Here is a mass of woodwork, becoming drier and drier every year, and must we continue building our cob-houses for bonfires? Is it not possible to obtain

secure foundations and to erect buildings from which every man need not flee as soon as it has obtained three minutes' start? Would any fireman attempt to enter a building arranged for a death-trap to brave men? This is no attack upon the Hoosac, but it refers to all buildings similarly constructed, and it is time that city authorities examined the means of exit from all such lofty structures.

What can be done to improve existing elevators? The first requisite is to convince owners of their imperfection, for the past expensive fire record has not practically educated them. The treasurer of the Hoosac Tunnel, Dock and Elevator Company is convinced of the perfect security of his pile of pine lumber. The management scorns the suggestions of practical special agents of fire insurance companies, and insists on no betterment of the risk is required.

Still, this house will be a profitable study as a guide to others. The water supply is abundant, the pumps being situated within sixty yards of salt water, and the hydraulic pumps are of large capacity. Each fifty feet, strong, roomy ladders should be erected, wide enough for two men to work on at a time, reaching up to the windows above the tops of the bins. Fire platforms should be provided, and above these smaller ladders should reach to the highest peak. Around the house, at a convenient distance, a line of large iron pipe should be placed beneath the ground, and be connected for fire purposes only with the pumps. At the foot of the six ladders there should be six two-way hydrants, and a large stand-pipe should rise near each ladder, with hose attached inside and brass couplings extending outside. In capacity each stand-pipe should deliver two full fire streams. Hose should be of linen of the best quality, with two and one-half inches standard couplings and seven-eighths inch nozzles. In addition to the hose on stand-pipes, there should be two outside reels, each carrying 400 feet of standard hose. This is a larger supply than many owners will concede is necessary in cities, but the ordinary steam fire engine delivers a stream of little value at extreme heights, and firemen will be very chary of using private stand-pipes, couplings and valves, unless they find them in practical use. Consequently, a private hose brigade of twelve men should be organized, and the night-watch should be formed into supplementary force, and each drilled in coupling hose every alternate fortnight. The fire apparatus should be inspected once a week, all valves oiled, and a written report made of its condition.

With the best arrangement there is always a loss of from two to five minutes in signaling the engineer, changing the valves of the pumps, and raising a stream of water 125 or 138 feet high, and with the currents of air in such large open spaces the whole house may be doomed in that time. For each 1,500 square feet of surface there should be one large fire cask, filled with salted water, and each cask provided with four painted galvanized iron fire pails, covered to exclude dust, and kept full for instant use. Fire pails, in hands of men confident of easy means of escape, are always invaluable, and ready for immediate use. Casks ought to be placed near each elevator head and journal. Electric bell signals should be multiplied so that they could be rung at four places on each floor. The elevator head should be of sheet-steel, and neither paper nor wood friction wheels used.

These large elevators would be much safer by the introduction of automatic sprinkler heads, provided the tank was of large size, and the supply pipes of sufficient diameter. In selecting one from the many patterns in the market, that one should be taken which proved to be the most sensitive and the most secure.

With an equipment of good fire apparatus, an elevator house also needs constant care. The dangers are from spontaneous combustion, principally of oily waste, and from heated journals. Both hazards are inexcusable. Grease is much safer on the heavy machinery than oil, as dripping is avoided, except in the extreme heat of summer, and less cotton waste is used in cleaning. Dust and accumulation of sweepings must not be permitted, and if dust escapes into the house while discharging grain, a watchman should be in constant attendance. No locomotives should be allowed to enter the house. No smoking permitted under any circumstances, and the rule enforced. Only locked millers' safety lanterns with wire gauze should be admitted into the house, burning only headlight or animal oil, and all gas lights should be inclosed in gas reflector boxes, with a ventilating pipe leading to the open air. No open lights should be used. Two instead of one night-watchman should be on patrol duty, and each ought to carry a Buerk watch-clock, or, better yet, signal to a Howard electric clock in the main office. This precaution will keep a record of faithful duty, and is due to the owners of half a million bushels of grain. Such regulations may seem arbitrary to owners, but practical study of the subject and consultation with experienced grain elevator architects will finally bring them to these conclusions. What will owners and underwriters do with the subject?

CANADIAN PACIFIC RAILROAD ELEVATORS.

The question of erecting elevators in Winnipeg is still being agitated. The Canadian Pacific Railway Company offer the following inducements for the erection of elevators: Grain to be billed from the shipping point to Winnipeg elevator at the local rate. When it goes forward it will be billed at the difference between the through rate from the shipping point to Port Arthur and

the local rate from the shipping point to Winnipeg, adding a nominal charge to cover the expense of stopping in transit. This charge as now applied to Winnipeg millers is one cent per hundred pounds, or six-tenths of a cent per bushel, and the elevator will be put on the same footing. Assuming the through rate from a certain station to Port Arthur to be 25 cents per bushel, and the local rate from the same station to Winnipeg to be 15 cents per bushel, grain stopping at the Winnipeg elevator would be billed to the elevator at 15 cents, and from the elevator at 10 6-10 cents, making a total charge of 25 6-10 cents per bushel, as against 25 cents on a direct shipment.—*Northwest Farmer.*

THE HUDSON BAY ROUTE FOR NORTHWESTERN GRAIN.

A Winnipeg correspondent to the *Toronto Globe* writes: "The Hudson Bay route is certainly the natural outlet for the products, not only of the Canadian Northwest, but also of the North-western States as well, and it is quite evident that if farming is ever going to pay here, our grain must reach the markets of the world that way. Even with the great fertility of the soil and other facilities for raising large crops on the prairie, and though our hard wheat is admittedly worth fifteen cents a bushel more than the wheat of Eastern countries for milling purposes, the farmers of the Northwest can not prosper while they have to pay the exorbitant freight rates now exacted of them. For instance, the rate this fall from here to Toronto is forty cents a bushel on wheat, of which twenty-two cents is charged by the C. P. R. and St. Paul and Manitoba roads combined for less than one-third of the whole distance, but if the Hudson Bay route were open it could be laid down in Liverpool, where the price is \$1.40 a bushel, for what it costs to send it to Toronto now at the outside, which would mean at least a million dollars of additional profits to our farmers on the present crop. It was rumored here last week that one of the great trunk lines running west from Chicago was negotiating for the purchase of the St. Paul & Manitoba Road, with a view of securing a share of the trade of the Canadian Northwest in opposition to the Canada Pacific Railway, but the Hudson Bay route is the great hope of the future."

For Sale.

FOR SALE—A SECOND-HAND ENGINE.

Twelve horse-power, in good repair. Old style. Price, \$100 on track here.

J. D. LESLIE, Lincoln, Ill.

FOR SALE.

A very desirable grain and stock business in Sac County, Iowa. Satisfactory business for past years shown and ample reasons for selling. Address

IOWA ELEVATOR,

Care AMERICAN ELEVATOR AND GRAIN TRADE,
184 and 186 Dearborn St., Chicago, Ill.

A BARGAIN TO GRAIN AND LUMBER MEN.

Porter & Co., of Hepburn, Page Co., Iowa, having secured large Lumber interests in the State of Alabama, which require their undivided attention, now offer for sale at a rare bargain their entire Grain, Stock, Coal, and Lumber interests at Hepburn, Iowa, on the line of the C. B. & Q. R. R., Villisca & St. Joe Branch, consisting of "One Elevator Building complete," 28x56 feet, two stories and cupola, with two sets of Elevators, three dumps, one Western Sheller, two Cleaners, one Victor Hopper Scale, brick Engine House with metal roof, Stationary Engine 25 H. P., complete and in good order. Easy driveways. Cross carriers for track shelling (this being recognized as a public shelling station); ample cob and dust room. All of the above named are comparatively new, as will be seen at any time on inspection. The scales and office and conveniently situated, with Hall's fire-proof safe and all needed office furniture. Corn Cribs for 35,000 bushels of ear corn, situated on four of the most valuable business lots in town. Cribs so built as to form a hollow square 120x300 feet, within which inclosure is a good well of water for a fine stock yard, at the same time affording the best of a yard for lumber in the state. "Stock Yard Scales and Office." We also have private stock yards, adjoining railroad stock yards, with permanent lease of grounds, upon which is a new office and scales, affording the best conveniences for large stock trade. A fine Residence Property, also a new cottage building of five rooms, modern improvements, pleasantly located, and commanding a fine view of all the above mentioned property. We also have a good Blacksmith and Wagon Shop, commanding a splendid patronage. "Good Will." We feel safe in saying that no other grain

business in Southwestern Iowa has more to dispose of in the line of good will than we have here. The trade was built during the past seven years, without competition in any of the above, in which time, excepting two years, about a quarter million bushels of corn were shipped per annum. It is surrounded by a large district of country, and a better class of farmers than any other county in this grand section of the state. And taking it all together it is a fine opening to any man wanting such an opening. Title perfect, and our terms easy. Immediate possession given, as we wish to retire from business. Call and see the property, or address

PORTER & Co., Hepburn, Iowa.

JNO. THOS. PORTER, Montgomery, Ala.

Refer by permission:

BENSLEY BROS., Chicago, Ill.

B. H. MORGAN & Co., Peoria, Ill.

J. J. PALEY, Great Valley Bank, Clarinda, Iowa.

PAT. SULLIVAN, Hepburn, Iowa.

Special Notices.

The Chicago Scale Co. sell Scales of all kinds also Portable Forges and Blacksmiths' Tools of all descriptions at about one-half usual prices. Buyers will save money by sending for their Price List.

Elevator Men—Howes & Ewell, of Silver Creek, N. Y., make a full line of wheat cleaning machinery. Read their advertisement on first cover page

For Sale Cheap—Trimmer Scourer and an Oat Separator. Address A. M., care AMERICAN ELEVATOR AND GRAIN TRADE.

Grain Commission Cards.

TRIMBLE & CO.

COMMISSION MERCHANTS,
GRAIN, FEED, SEED, ETC.,

Room 3, 204 Walnut Place, Philadelphia, Pa

Careful attention given to Filling Option Orders.

REFERENCES: Merchants Nat. Bank; Philadelphia Nat. Bank.

F. A. BISHOP & CO.,

COMMISSION MERCHANTS

GRAIN, FLOUR AND MILLSTUFFS,

No. 10 Chamber of Commerce Building, - - - MINNEAPOLIS.

Orders for and Consignments of Milling Wheat a Specialty.

E. B. OWENS & CO.,

GRAIN AND FLOUR,

153 West Pratt Street,

BALTIMORE, MD.

REFERENCES: Western National Bank;
Citizens' National Bank.

F. H. PEAVEY & CO.,

Commission Merchants,

Room 13, Chamber of Commerce, Minneapolis, Minn.

Extra Facilities for furnishing Coarse Grain in large lots.

Prompt Attention given to any business intrusted to our care.

Grain Commission Cards.

M. J. FORBES.

GEO. SPENCER.

GEO. SPENCER & CO.,

DULUTH, MINN.

GRAIN ON COMMISSION.

DULUTH HARD WHEAT

A Specialty.

ORDERS FOR CARGOES SOLICITED.

C. F. LISTMAN & CO.,

Commission Merchants and Exporters,

48 Metropolitan Block,
Flour and Grain. CHICAGO.

Communications from Millers Solicited, with Offers and Samples. Liberal Advances on Consignments. Highest References.

Established 1860.

J. M. HAYES & CO.

Flour, Grain, Corn, Oats and Mill Feed,

Corn Goods, Hominy, Grits, Pearl Meal, Corn Flour

AND FEED MEAL,

CINCINNATI, OHIO.

F. SCHWARTZ.

H. SCHWARTZ.

F. SCHWARTZ & BRO.,

Gen'l Commission Merchants

1601 TO 1605 BROADWAY,

GRAIN! St. Louis. FLOUR!

Liberal Advances Made on Consignments.

ESTABLISHED 1866.

J. VAN WINT,

Grain and Flour Agent,

ANTWERP, BELGIUM.

REFERENCES AND CABLE CODES FURNISHED.

WARNER & WILBUR,

General Commission Merchants

Room 28, Metropolitan Block, Chicago.

Refer by permission: B. L. Smith, Cashier Hide and Leather National Bank, Chicago, Ill.; Col. E. A. Bowen, President First National Bank, Mendota, Ill.; Chas. C. Macy, Cashier Farmers' National Bank, Hudson, N. Y.; Wm. Seymour, Cashier First National Bank, Hudson, N. Y.; Fred K. Hill, Cashier Tanners' National Bank, Catskill, N. Y.; or O. P. Collier, President First National Bank, Battle Creek, Mich.

GOODRIDGE, FIELD & CO.;

GRAIN AND FLOUR,

NORFOLK, VA.

Business attended to at Newport News (Eastern Terminus C. & O. Railroad).

Grain Commission Cards.

ESTABLISHED 1863.

CHANDLER-BROWN CO.

GRAIN AND SEED

COMMISSION MERCHANTS,

J. A. Brown, CHICAGO: 177 La Salle Street. E. H. Chandler, MILWAUKEE: Chamber of Commerce. G. W. Chandler, G. W. Chandler, A. H. Pirie.

N. A. SANBORN,

Receiver and Eastern Agent

FOR SALE OF

WESTERN GRAIN, FLOUR, BRAN, FEED,

Seeds, Pork, Beef, Lard.

Office, No. 1 Exchange Street,
PORTLAND, MAINE.

BUCKLEY, PURSLEY & CO.,

(Successors to Buckley & Co. and Thos. J. Pursley.

Grain Commission Merchants

Room 10, Chamber Commerce, PEORIA, ILL.

Returns prompt. Correspondence invited. Best market in the world on low grade corn. Charges for selling very small. References: First National Bank, Mechanics' National Bank, Peoria National Bank, Callender, Ayres & Co.'s Bank.

A. B. TAYLOR.

D. C. MOAK

A. B. TAYLOR & CO.,
Commission Merchants

Grain, Flour and Millstuffs.

Choice Milling Wheat a Specialty

Careful attention given to consignments and orders for wheat, flour and bran, filled at lowest prices.

MINNEAPOLIS, MINN.

KANSAS CORN.

FRENCH BROS.,

KANSAS CITY, MO.

Grain Commission Merchants.

KANSAS WHEAT.

L. H. VOIGT.

A. M. VOIGT

VOIGT, MAHOOD & CO.,
PRODUCE COMMISSION MERCHANTS.

For the sale of

BUTTER, CHEESE, EGGS, POULTRY,

Beans, Peas, Maple Sugar, Fancy Creamery Butter, Green and Dried Fruits, Potatoes, Flour, Grain and Produce generally; California Honey and Fruits, Lima Beans, Butter Tubs and Egg Cases. Market reports sent to shippers weekly. Cooling rooms for butter.

257 Liberty Street, PITTSBURGH, PA.

T. B. SIMS & CO.,

General Produce and Commission Merchants

No. 3 Union Street,

MEMPHIS, TENN.

SPECIALTIES:

Flour, Meal, Corn, Oats, Hay and Provisions.

BOOKWALTER ENGINE!

Effective, Simple, Durable and Cheap.



Especially adapted for the operation of small mill and Railroad Elevators, Farm Mills, sawing wood and the running of light machinery generally.

OVER 2500 IN USE.
Can be easily operated by any one of ordinary intelligence. Every Engine complete ready to run as soon as received. No Engine built so good and so low in price. Will give the full power claimed.

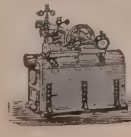
3 1/2 H. Power, \$240 4 H. Power, \$280
6 H. Power, \$350 8 H. Power, \$440

Fine new illustrated catalogue sent on application.
JAMES LEFFEL & CO.,
5 Lagonda Ave., Springfield, Ohio.

COMMON SENSE ENGINE.



3 H. P. \$275.
5 H. P. 300.
7 H. P. 375.
10 H. P. 500.



Simple, Durable, of Best Workmanship and built with the latest and best materials.
Common Sense Engine Co.,
Springfield, Ohio.
Boilers thoroughly tested.

6 H. P. \$ 600
8 H. P. 650
10 H. P. 850
12 H. P. 1000
15 H. P. 1250 (Send for des. and descriptive catalogue.)
20 H. P. 1650
25 H. P. 2250

PATENTS

MUNN & CO., of the SCIENTIFIC AMERICAN, continue to act as Solicitors for Patents, Caveats, Trade Marks, Copyrights, for the United States, Canada, England, France, Germany, etc. Hand Book about Patents sent free. Thirty-seven years' experience. Patents obtained through MUNN & CO. are noticed in the SCIENTIFIC AMERICAN, the largest, best, and most widely circulated scientific paper. \$3.20 a year. Weekly. Splendid engravings and interesting information. Specimen copy of the SCIENTIFIC AMERICAN sent free. Address MUNN & CO., SCIENTIFIC AMERICAN Office, 251 Broadway, New York.

SUBSCRIBE

FOR THE

American Elevator and Grain Trade

\$1.00 PER YEAR.

Address **Mitchell Bros. Co.,**

CHICAGO, ILL.

Books on Steam Power!

We will send any of the following named Books, postage free, on receipt of annexed prices:

Roper—A Catechism of High Pressure or Non-Condensing Steam Engines: Including the Modeling, Construction and Management of Steam Engines and Boilers, with valuable illustrations. By Stephen Roper, Engineer. Thirteenth edition, revised and enlarged. 12mo., tucks, gilt edge. \$3.00
Roper—Handbook of Modern Steam Fire-Engines: With illustrations, by Stephen Roper, Engineer. 12mo., tucks, gilt edge. \$3.50

Roper—Use and Abuse of the Steam Boiler: By Stephen Roper, Engineer. Fifth edition, with illustrations. 18mo., tucks, gilt edge. \$3.00
Roper—Engineer's Handy book: \$3.50
Roper—Questions and Answers for Engineers: \$3.00

Address **MITCHELL BROS. CO.,**
184 Dearborn St., Chicago, Ill.

DRYING GRAIN

BY HOT AIR!

CUTLER'S PATENT DRYING SHELVES,

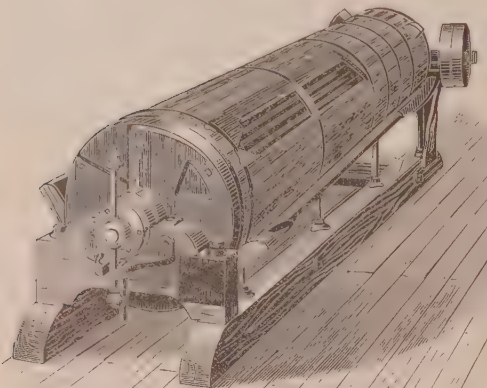
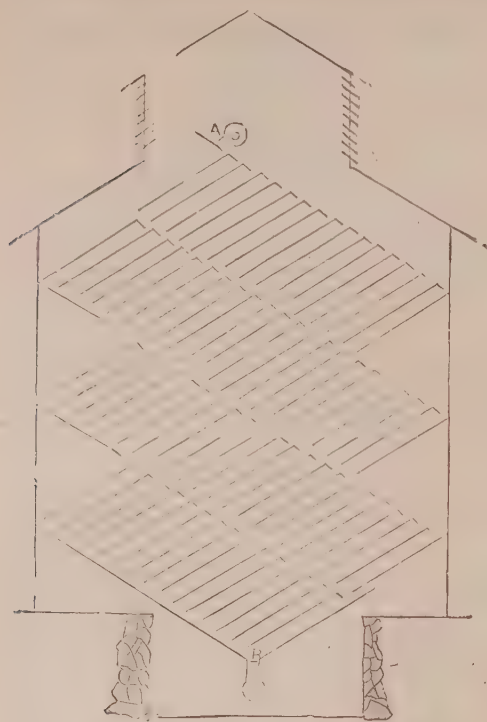
Constructed with wire cloth or perforated metal, are superior to all other appliances for drying by hot air. The grain moves over them by gravity. The grain lays loosely on inclined shelves, the hot air going through the grain where it is only a few inches deep. In all respects it is superior to the wire cloth partition, where grain is pressed hard together in a high perpendicular column with wire cloth on both sides. We furnish Models for these Shelves, with the right to use, for \$75. Any carpenter, with ordinary lumber and a small quantity of perforated iron, can erect a Dryer from this Model.

CUTLER'S STEAM DRYER,

Using super-heated steam at 500 Farenheit, thereby nearly doubling its capacity, is the cheapest Grain Dryer in the world. These Dryers have been in use 14 years, and may be found doing good work in almost every state in the Union.

Send for Circulars.

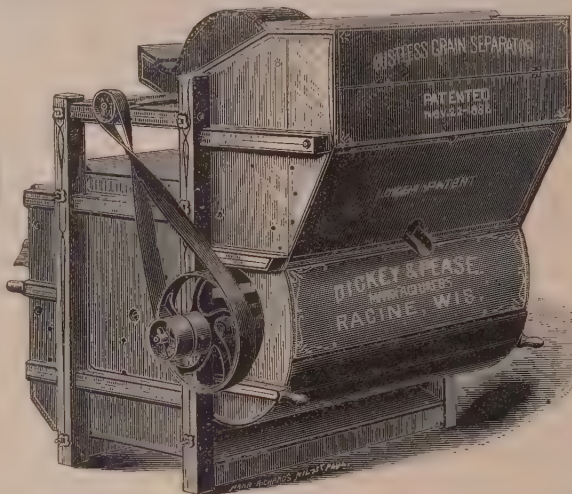
Cutler & Co.
NORTH WILBRAHAM,
MASS.



THE ACME DUSTLESS GRAIN SEPARATOR

Made by **DICKEY & PEASE,**
MANUFACTURERS OF THE

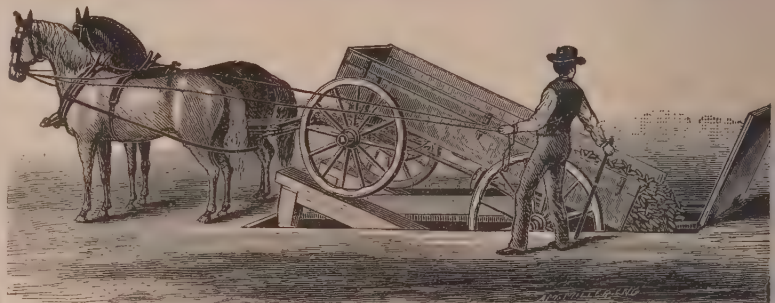
Celebrated "A. P. Dickey" Warehouse and Farm Fanning Mills



RACINE, WIS.

This is the only machine in existence that fairly deserves the name of "Dustless Separator." It is the only one that takes the dust and high chaff out of grain as it passes into the "Separator," thus separating the oat from wheat or barley — screening the grain, and grading it, if desired — all at one operation. The dust is conveyed out of doors into a bin by means of a spout attached to the suction fan box. Capacity from 400 to 600 bushels per hour, according to the class of the grain. We guarantee every machine to give satisfaction. Circulars giving full particulars and prices, furnished on application to

DICKEY & PEASE, Manufacturers, - - - RACINE, WISCONSIN



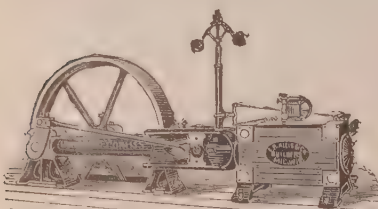
The above cut is a fair representation of the Rail Dump in common use, on which we are collecting a royalty for past use, and licensing parties to continue to use and also put in New Dumps. Our patents on Rail Dumps fully cover this class of Dumps. Any one using Rail Dumps can readily decide by comparing his Dump with this cut, whether he infringes or not. We also control patents that cover Platform Dumps. Our prices are reasonable in settlements for past infringements, and for licenses to continue to use the Dumps. Prices given on application. See notice below.

RELIANCE WORKS,

EDW. P. ALLIS & CO., Props., Milwaukee, Wis.

—SOLE MANUFACTURERS OF THE—

REYNOLDS-CORLISS ENGINE!



This engine is especially designed for manufacturing purposes, being strong, serviceable, and of the best material and workmanship. Its even speed makes it especially desirable for flouring mills and elevators.

OVER 250 OF THESE ENGINES ARE NOW IN USE, and references can be given. These engines have developed in expert trial and every day work THE HIGHEST ECONOMY KNOWN IN STEAM ENGINEERING!

They will save in fuel 33 to 60 per cent. over any ordinary engine.

We also manufacture Reynolds' Patent AIR PUMP and CONDENSER, which can be used with our make of engines, and effect a saving of about 25 per cent. Also REYNOLDS' PATENT FEED WATER HEATER AND PURIFIER. Send for Catalogue and Prices to

EDW. P. ALLIS & CO., Milwaukee, Wis.

CHICAGO CAR MOVER, IMPROVED.

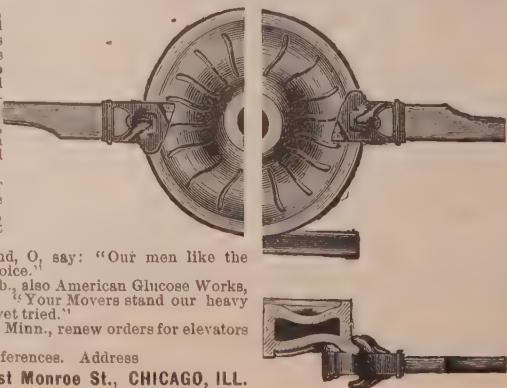
Not only by its Double Clutches, being so constructed that it will accommodate itself to the various styles of wheels; but as power is applied to the lever, there is no slip or break to it. Warranted to stand any two man power. Manufactured of steel and malleable iron. Its weight, only 15 pounds, makes it a handy tool. Cars can be placed on hard tracks easily and rapidly.

Healy, Felt & White, lumber dealers, Montrose, Iowa, say: "We have tried all kinds of car jacks, and these are the only ones that ever gave satisfaction."

Cleveland Milling Co., Cleveland, O., say: "Our men like the movers. Enclosed is draft for invoice." Union Elevator Co., Omaha, Neb., also American Glucose Works, on renewal of order for pairs say: "Your Movers stand our heavy work well and are the best thing yet tried."

J. Van Dusen & Co., Rochester, Minn., renew orders for elevators in Minnesota and Dakota.

Can give hundreds of similar references. Address **C. T. BARNES & CO., 335 West Monroe St., CHICAGO, ILL.**



NOTICE.

To Parties Using Grain Dumps.

Notice is hereby given that we have been retained to prosecute infringers of the following Letters Patent on Grain Dumps:

One granted to Noah Swickard, Oct. 13, 1868, No. 88,005. Reissued Dec. 20, 1870, No. 4,212, for Improvement in Wagon and Car Unloading Apparatus.

One granted to Samuel C. Kenaga, Oct. 20, 1868, No. 83,253, for Improved Dumping Platform.

One granted to Benjamin Walton, Nov. 31, 1869, No. 97,252, for Improved Dumping Machine, and

One granted to Wm. M. Hall, Sept. 6, 1870, No. 107,040, for improvement in Grain Dumps, and all persons or parties manufacturing or using Grain Dumps which infringe on any of the above described Patents must make settlement for all past infringements, and take license in accordance with the usual terms, if they desire to continue to manufacture or use the same, or legal steps will be taken to enforce said Patents against all infringers.

Applications for licenses for using said patented improvements, and for settlement for past infringements should be addressed to

J. M. HARPER, New Opera House Building, Peoria, Ill.

BURNET & BURNET,

Complainant's Counsel, Cincinnati, Ohio.

PROVIDENCE STEAM ENGINE COMPANY

PROVIDENCE, R. I., SOLE BUILDERS OF THE

IMPROVED

GREENE AUTOMATIC CUT-OFF ENGINE!

ALSO BOILERS, TANKS AND SHEET IRON WORK.

H. W. GARDNER, President.

T. W. PHILLIPS, Secretary

M. F. SEELEY

J. S. SEELEY

E. E. HANKS

C. R. DELAMATYR.

SEELEY, SON & CO., Fremont, Neb. Elevator Builders.

We build a "SEELEY" ELEVATOR that stands at the head of Elevators as a self-binder stands at the head of reapers. We furnish

Plans, Specifications and Estimates

Also furnish all kinds of

MACHINERY.

Engines, Cleaners, Corn Shellers, Belts and Buckets, Etc., Etc.

With our experience we can save you on these items more than cost of Plans. Correspond with us and save costly mistakes.

KNISELY & MILLER,

68 to 74 West Monroe Street, CHICAGO,

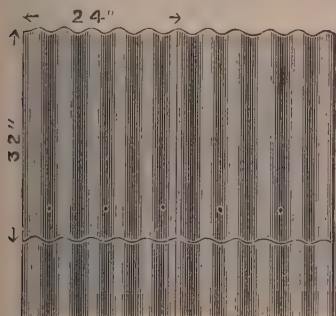
Slate, Tin and Iron

ROOFERS!

Manufacturers of

CORRUGATED IRON

For Roofing
And Siding.

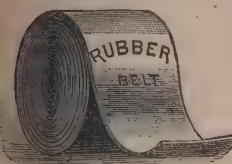


This cut shows our method of fastening Corrugated iron to Elevator Bins to allow for settling and raising.

The Oldest and Largest Manufacturers in the United States of

VULCANIZED RUBBER

In every Form, adapted to MECHANICAL PURPOSES.



Machine Belting
WITH
Smooth Metallic Rubber Surface.

This Company has manufactured the largest Belts made in the world for the Principal Elevators at Chicago, Buffalo and New York.

Steam and Water Hose,
PLAIN AND RUBBER LINED.

RUBBER "TEST" HOSE, made of Vulcanized Para Rubber and Carbolized Duck; Cotton "CABLE" HOSE, Circular, Woven, Seamless, Antiseptic, for the use of Steam and Hand Fire Engines, Force Pumps, Mills, Factories, Steamers, and Brewers' use.



CAR SPRINGS
OF A
Superior Quality,
And of all the various Sizes used.

Original Solid VULCANITE EMERY WHEELS.

Large Wheels made on Cast-Iron Centre if desired.

PATENT
Elastic Rubber Back Square Packing.
BEST IN THE WORLD for Packing the Piston Rods and Valve Stems of Steam Engines and Pumps.



CORRUGATED

Rubber Mats and Matting,
For Halls, Flooring, Stone and Iron Stairways, etc.

NEW YORK
Belting and Packing Co.,
WAREHOUSE,
15 PARK ROW,
NEW YORK.

JOHN H. CHEEVER, Treasurer.

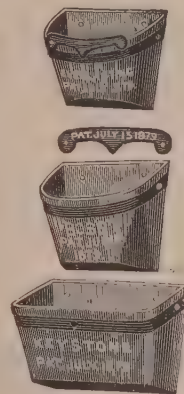
F. WILSON'S
PATENT

BONE MILLS.

The only mills that will grind RAW BONES green or dry. For the Poultryman, Farmer, Gardener and Bone Dust Manufacturer. For Hand and Power. Send for circulars and testimonials. Also manufacturers of Horizontal Steam Engines.

WILSON BROS., Easton, Pa.

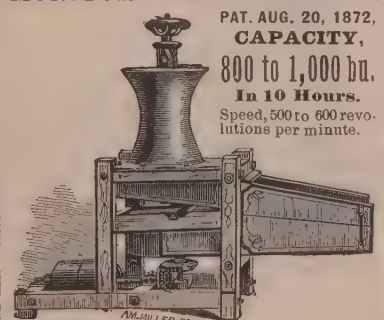
The Everlasting Elevator Bucket Co.,



Manufactures three of the best elevator buckets on the market. The "Everlasting" is round faced, no corners to catch; superior carrying and emptying capacity, with patent malleable iron lip. Outwears any bucket in the market. The "Boss" has an oval front and square bottom. Light, strong, and durable; lip can be attached if desired. The "Keystone" is as near perfect as a square cup can be. The corners are rounded, with double bottom, and substantially made. Prices as low as ordinary buckets. Best of testimonials. Sold to mill furnishers generally. Order from your furnishers or of us direct. They pack closely. Elevator Bolts at manufacturers' prices.

The Everlasting Elevator Bucket Co.,
TERRE HAUTE, IND.

MONITOR CORN SHELLER!



PAT. AUG. 20, 1872,
CAPACITY,
800 to 1,000 bu.
In 10 Hours.
Speed, 500 to 600 revolutions per minute.

Superior to all other shellers in simplicity, durability, and effectiveness in working. Runs with less power than any other sheller of equal capacity. Cleans the corn from the chaff, shells without breaking the cob, and will work with damp corn as well as dry. Can be adjusted to different size of corn ears without stopping the machine. Two styles made, geared, and not geared. Write for circulars and particulars.

SELLEW & POPPLE, - DUNKIRK, N. Y.
Manufacturers of Standard and Automatic Cut-Off Engines, Boilers and General Machinery.



HOWE'S "CHALLENGE"
SAMPLE MAIL ENVELOPE!
Cheap, Simple, Neat and Secure. Easily opened, filled and closed, and is absolutely secure when closed. Five sizes made: 1, 2, 4, 6 and 8 ounces. It Takes the Cake. For Government rulings relative to flour samples, see our advertisement in AM. MILLER of Nov. 1, and in Elevator & Grain Trade of Nov. 15. Send for sample and prices. [Please mention this paper.]
Howe Pattern & Mfg. Co., 445 Bagby St., Detroit, Mich.

TO GRAIN MERCHANTS

We are in no way mixed up in the fight over the Patents on the Rail Dump. Our title in the **HINMAN GRAIN DUMP** is undisputed. Our Dumps are constantly growing in favor.

Send for Circulars and References.

WESTERN GRAIN DUMP CO., LINCOLN, ILL.

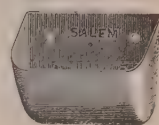
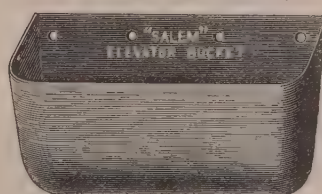


Shovel Edge,
SEAMLESS
ROUNDED
CORNERS.

Curved Heel.

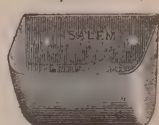


THE "SALEM" Elevator Bucket.



Runs Easy;
STRONG AND
DURABLE.

Empties Clean.



W. J. CLARK & CO., Sole Manufacturers,
SALEM, OHIO.

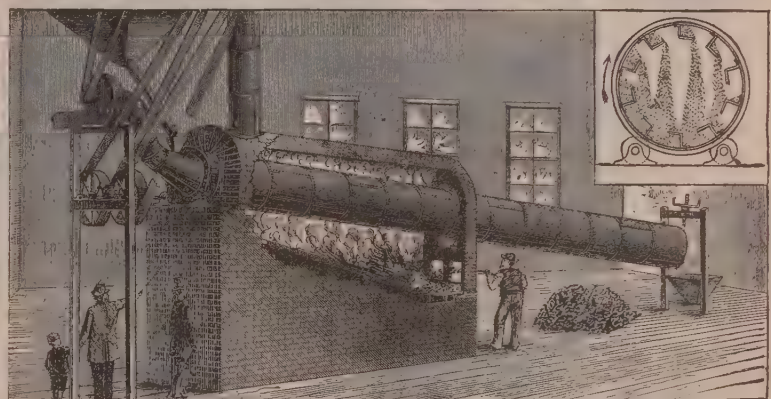
New York Office and Salesroom, No. 9 Cliff St.

STEAM GRAIN DRYER.

I am now putting one of my **DRYERS** in the Elevator of Marsh & Spear, at Joliet, Ill., which will have a capacity of Twenty-five Cars per day. This Dryer will soon be ready and open to the inspection of grain men, who can examine the principle of its action and its operations.

W. H. APFLEGATE, Patentee,
ATLANTIC IOWA.

S. E. WORRELL'S COMBINED DRIER AND COOLER!



FOR DAMP AND MUSTY GRAIN, ETC.

Read the following strong letters of recommendation: [The italics are just as they appear in the Original.]

BALTIMORE, MD., February 16, 1883.

S. E. WORRELL, Esq., Hannibal, Mo.:

DEAR SIR:—We are pleased to state that the No. 2 Drier we recently constructed and erected from your plans and drawings, for one of the largest of our elevator firms, is doing admirable service. It is drying and cooling from 50 to 60 bushels of corn per hour—some of it in a *very bad* condition. We have had ample means of comparison, as at the same mills and elevator they have one of the best Steam Driers, and an Oven Shelf Drier or Kiln. They find that yours does *more work and better work* than either. Though previously suspicious of the new-comer, they pronounce it the *best*.

We unhesitatingly recommend it as the most perfect Machine for the purpose, of which we have any knowledge.

Very respectfully,

ZELL & DANER, Baltimore Engineering Agency.

OFFICE OF HANNIBAL MILLING CO.,
HANNIBAL, Mo., June 5, 1883.

TO WHOM IT MAY CONCERN:

The bearer, Mr. Worrell, is the inventor of a Grain Drier, one of which is situated on lot adjoining our property, and we have had large opportunities of witnessing its work. It thoroughly cleans and dries the grain, and we have had some wheat dried for ourselves, which was quite satisfactory to us. We saw Mr. Worrell dry a lot of damp, musty hominy, and when done it was dry, hard, and the smell of must had disappeared. We consider the machine a valuable one.

Respectfully,

HANNIBAL MILLING CO.

This machine is a practical Drier, in successful operation, in the most economical manner by the direct use of fire heat without injury to the grain. It has been clearly demonstrated that this is an improvement upon the method of drying by steam, which is not hot enough for the purpose. Now is the time to buy the machines, for much of the present corn crop must be artificially dried. Descriptive circulars and prices sent upon application. Machines for sale at a reduction on former price by
S. E. WORRELL, Hannibal, Mo.

OHIO VALLEY

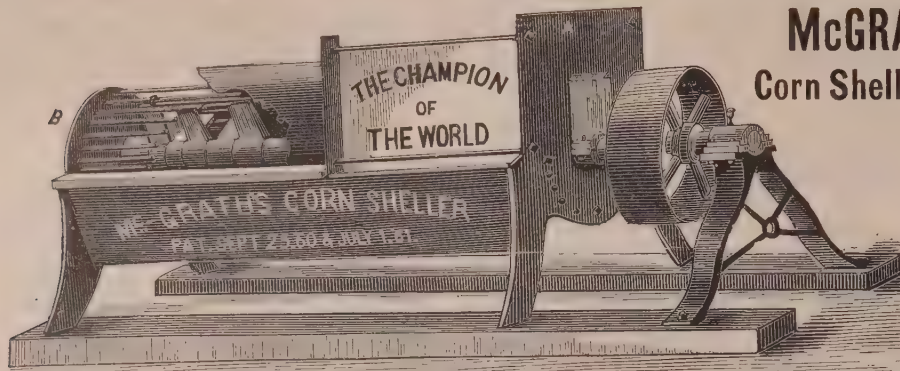
Boiler Cleaning Company's Compound

Specially adapted for Waters containing Mineral Precipitants.

Sold in Barrel and Half-Barrel Packages, ON APPROBATION, at \$1.00 per gallon. F. O. B. Guaranteed to act in all cases, and to be free from any ingredients injurious to iron. Treatise on Boilers and Steam matters, with references and circulars, free on application. Recipe with Shop Rights, with second order. Address

BEN E. HARRIS, Sec'y,

No. 72 West 3d St., CINCINNATI, OHIO.



McGRATH & CO.'S Corn Sheller and Corn Cleaner

WORKS.

Manufacturers of
McGrath's Hornet

AND
McGrath's Twin Corn
Sheller and Cleaner.
McGrath's "Champion
of the World."

McGrath's Pat. Grain
Dump. Also Shafting,
Pulleys, Hangers and
Warehouse Machinery
of every description.

OFFICE AND WORKS,
136 & 138 S. Third St.,
LAFAYETTE, IND.

THE California Scourer and Separator COMBINED FOR ELEVATORS

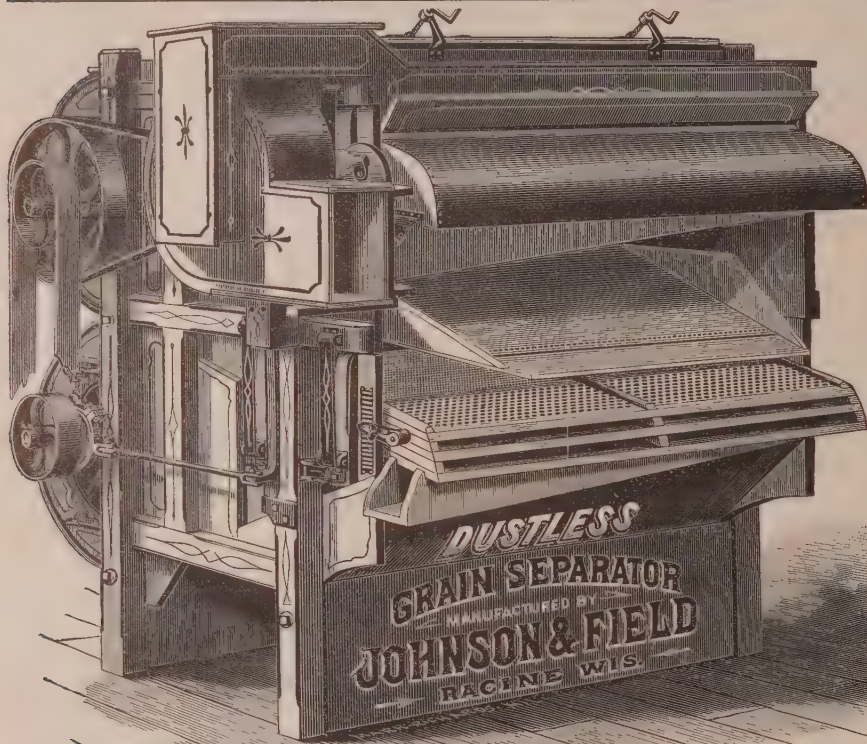
FOX LAKE, WIS., Jan. 12, 1882.

M. DEAL & Co., Manufacturers California Grain
Cleaning Machinery, Bucyrus, Ohio:

Your California Scourer and Separator please
us. *It is first-class. It does its work well.* It is
the best machine to **Scour and Clean Barley**. It
we have ever seen. Our engine is 10-horse power
and will easily run two machines like it, Fanning
Mill and Elevator. We would recommend it for
Warehouse purposes ahead of all other machines.

MYERS & BICKELLAUPT.

Send for Illustrated Catalogue and Price
List. IT WILL PAY YOU!



JOHNSON & FIELD'S DUSTLESS GRAIN SEPARATORS

Our aim has been to construct a machine that
would do superior work, clean fast, run easy, and
to remove all dust and foul stuff without wasting
any grain or seed; also in making it strong and
durable in every respect.

The accompanying cut shows our Dustless Sep-
arator. For these machines we make the follow-
ing claims:

FIRST. **Their Superiority in Separation:** They have two distinct
combinations of sieves and screens to which blast is applied, which performs the
same work in one operation that is usually done in running through twice.

SECOND. **Their Light Running:** They can be run by horse power as
well as by steam. One horse power can run them besides elevating the grain.

THIRD. **Their Large Cleaning Capacity:** In constructing these ma-
chines the capacity has been greatly increased, so that they will clean much faster
than any single machine of equal size.

FOURTH. **The Effectiveness of Removing Dust and Chaff:** By
combining the Dustless Fan with these machines all dust and chaff can be taken
out and carried through spouts to outside of building or into a dust-box, thereby ob-
viating the great objection and nuisance of having the house filled with dust, and
the discomfort and injurious effect on men working therein.

FIFTH. **Their Great Strength and Durability:** In making these
machines it has been one of the chief objects to make them as strong and durable as
can be done by skilled labor and the best of materials, the frame work being very
heavy, made out of thoroughly seasoned white oak. The irons are extra heavy, and
all fastened on with bolts, with shafts of one and one-half inch in diameter. Bab-
bitted Boxes, large, solid Eccentrics, with heavy Connecting Rods; and Brass Oil
Cups on all Bearings. Also the Hopper, Feed and Grain Boards are covered with
Heavy Sheet Iron, preventing the grain from wearing through same.

Although these machines have been only a
short time in the market, they have met with uni-
versal approval, and the increased demands speak
well for their merits. For Circulars, Prices, etc.,
address

JOHNSON & FIELD, Racine, Wis.

CHAS. KAESTNER & CO.,

Established 1863.

General Machinery.

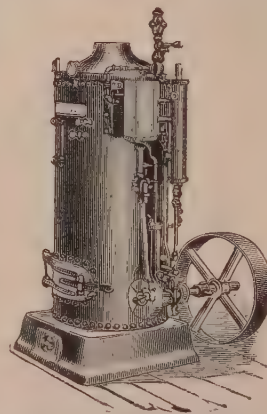
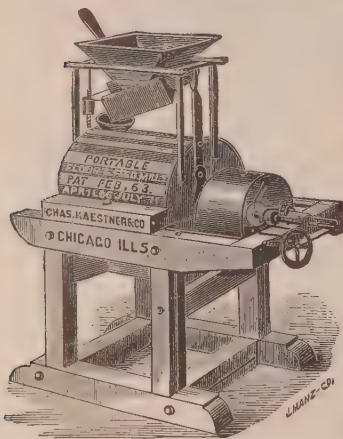
SHAFTING,
PULLEYS,
HANGERS and
GEARING
A SPECIALTY.

Over 4,500 of our Mills in Use.
Sold under a full guarantee to give entire
satisfaction, or money refunded.

Parties erecting Elevators will consult
their own interests by sending for our il-
lustrated Catalogue and references.

— OFFICE AND WORKS, —

303 to 311 So. Canal St., { CHICAGO.
74 to 98 Harrison St., }



TRIUMPH ENGINE!

It is Especially Adapted

For Small Mill and Railroad
ELEVATORS.

Every Engine Complete, with Heater, Gover-
nor, etc., ready to run as soon as received.

Requires the least Space and Fuel, and is the
most Economical Engine to operator of any ever
offered to the Grain Trade. Full Power guar-
anteed. **Boilers all Wrought Iron**, Tested
Inspected and Insured.

It Annihilates Horse-Powers.

ANY PERSON OF ORDINARY INTELLI-
GENCE CAN OPERATE IT!

PAIGE MFG. CO., 173 & 174, PAINESVILLE, OHIO.
Lake St.

We Refer to the Grain Trade of the Northwest.

HERSEY'S PATENT STEAM GRAIN DRYER,

The Most Successful Dryer in Use.

Over 200 in Operation: This Dryer
has been in Operation 12 Years:

Will Dry Grains of every description, and in every
condition, whether slightly damp or very wet, cheap-
er and in larger quantities than any other System.
Does not injure the grain, and can be used as a
Cooler and Duster, also as a Heater for Flour Mills.
Is the only Dryer in the country upon Sugar, is ex-
tensively used for Drying Salt, Grape Sugar, Sugar
Feed, Corn Refuse, Fertilizer, etc. Takes but very
little power and steam, no labor, simple, no repairs, no wood work, and permitted by insurance com-
panies to be operated without additional insurance. Can be arranged for using direct, exhaust or super
heated steam. We make them from four feet to six feet diameter; eighteen feet to thirty-five feet long

Prices and Circulars upon Application:

HERSEY BROTHERS, - - - SOUTH BOSTON MASS.

STEAM ENGINES

—FOR—

GRAIN ELEVATORS!

FISHKILL LANDING MACHINE COMPANY,

Fishkill-on-the-Hudson, New York.

Send for Illustrated Catalogue.

A GREAT SAVING IN THE RUNNING OF GRAIN ELEVATORS! THE LOTZ PATENT GRAIN SHOVELING MACHINE, FOR UNLOADING CARS.

PAT. NOVEMBER 23, 1880, AND DECEMBER 14, 1880.

This machine works automatic. The hoist rope spool of each machine is driven from a line shafting by paper friction wheels, and all the mechanical movements in the machine are such that they will not wear, nor get out of order. A GREAT SAVING IN REPAIRS OF SCOOPS, in the WEARING OF ROPES, in LUBRICATING MATERIAL, and in REPAIRS ON MACHINE. The resistance on taking the scoop back into the car is much less than with other automatic machines. The length of pull of hoist rope can be instantly adjusted. The more economical operation of this machine as compared with others will pay its first cost in five years.

Eleven double machines of above construction have been set up and are in practical operation in Rock Island Elevator A, near Twelfth Street Bridge, Chicago, Ill.

MR. WM. H. LOTZ, CHICAGO:

DEAR SIR—We have been using your Patent Shovel Machines in Rock Island Elevator A for several months, and are well satisfied with them. We estimate a saving of 50 per cent on shovels, 75 per cent on rope, and 60 per cent on oil over all the Shovels previously used by us. Yours truly,

FLINT, ODELL & CO.

For further information address

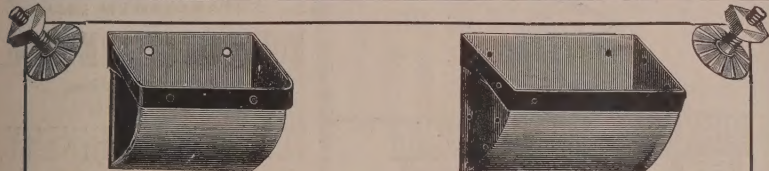
HOWARD IRON WORKS, Buffalo, N. Y.,
Sole Mfrs for the United States.

WM. H. LOTZ, Mechanical Engineer
Metropolitan Block, Chicago.

HOWARD IRON WORKS, BUFFALO, N. Y. —MANUFACTURERS OF— MACHINERY FOR GRAIN ELEVATORS.

They Have Furnished the Machinery For

MUNGER, WHEELER & CO., AIR LINE ELEVATOR.....	CHICAGO, ILL.
VINCENT, NELSON & CO. ELEVATOR.....	" "
ARMOUR, DOLE & CO., C ELEVATOR.....	" "
ARMOUR, DOLE & CO., D ELEVATOR.....	" "
MUNGER, WHEELER & CO., IOWA ELEVATOR.....	" "
MUNGER, WHEELER & CO., ST. PAUL ELEVATOR.....	" "
WABASH ELEVATOR.....	" "
CHICAGO & WESTERN INDIANA RY CO. ELEVATOR.....	" "
N. Y. LAKE ERIE & WESTERN RY CO. ELEVATOR.....	BUFFALO, N. Y.
COMMERCIAL ELEVATOR.....	" "
WHEELER ELEVATOR.....	" "
UNION ELEVATOR.....	TOLEDO, OHIO
JOLIET ELEVATOR.....	JOLIET, ILL.
SODUS BAY ELEVATOR.....	SODUS PT, N. Y.
SILLO ELEVATOR, HAMBURG, GERMANY, and others.	

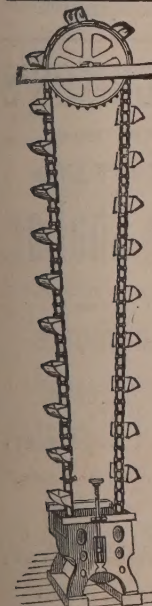


THORNBURGH & GLESSNER,

47 and 49 West Lake Street, Chicago, Ill.,

Manufacturers of the following Well Known Specialties:
The EXCELSIOR MILL BUCKET—EXCELSIOR RIVET BUCKET—EXCELSIOR CORN BUCKET—
CORRUGATED BELT BOLT—EXCELSIOR FLAT HEAD BOLT—SAFETY IRON ELEVATOR BOOT—EXCELSIOR CAST IRON BOOT.

In Stock—40,000 Feet of
ACALDWEELLS
CONVEYOR



ANTI-FRICTION ROLLER DETACHABLE CHAIN BELTING —FOR— TRANSMITTING POWER,

ESPECIALLY ADAPTED for Elevators, Conveyors, Carriers and Driving Belts for Use in Mills, Elevators, Breweries, Malt Houses, etc., etc.

Send for Circulars. Manufactured and Sold by the
LECHNER MANUFACTURING CO.
Columbus, Ohio.

P RINTING of Every Description.
Catalogues a Specialty.
First-Class Work Guaranteed.
Everything New.
Estimates Furnished on Application.
Wm. Porter,
150 Dearborn St., Chicago,
Room 42.



"MOORE COUNTY GRIT"
Corn-Mills and Millstones,
ALL SIZES.
THE BEST IN THE WORLD
FOR TABLE MEAL
Samples of Meal Sent on Application.
NORTH CAROLINA MILLSTONE CO.
Chambersburg, Pa.
(Please Mention this Paper.)

POOLE & HUNT, BALTIMORE, MD.

—MANUFACTURERS OF—

MACHINE MOULDED GEARING, SHAFTING, PULLEYS,

And other machinery of the most approved construction for the transmission of power. Our patterns for

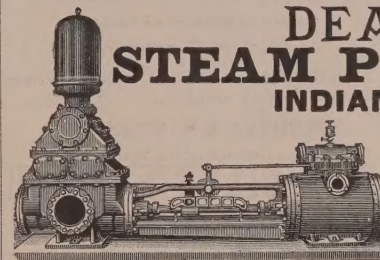
Horizontal Belt Conveyors, Tripping Machines, "Boots and Heads," "Legs" for Unloading Barges, Register Valves, Bin Bottom Valves, and Shipping Spouts

Are of the most efficient style. We are also prepared to furnish

PAPER FRICTION PULLEYS,

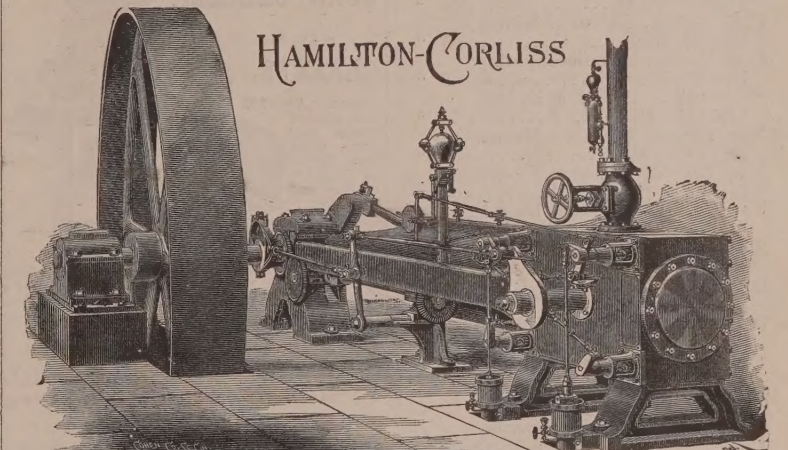
Made under heavy hydrostatic pressure. Samples of our work may be seen at the

Erie Elevator..... Jersey City, N. J.
Harisimus Cove Elevator.....
Dows' Stores..... Brooklyn, N. Y.
Baltimore & Ohio Elevator..... Baltimore, Md.
New York & New England Elevator..... Boston, Mass.
Boston & Albany Elevator.....



DEAN BROS' STEAM PUMP WORKS, INDIANAPOLIS, IND.

Boiler Feeders, Fire Pumps,
Vertical Pumps, Air Pumps
& Condensers, Water Works
Pumps.
WRITE FOR CATALOGUE &
PRICES.



HAMILTON-CORLISS

CLOSE REGULATION,

AND BEST ATTAINABLE ECONOMY OF FUEL AND STEAM.
HIGHEST EFFICIENCY AND SUPERIOR CONSTRUCTION.
Made in all Sizes, from 50 to 300 H. P. Correspondence Solicited.

THE HOOVEN, OWENS & RENTSCHLER CO.

Builders of all Styles of Engines, Boilers, Saw Mills, etc..

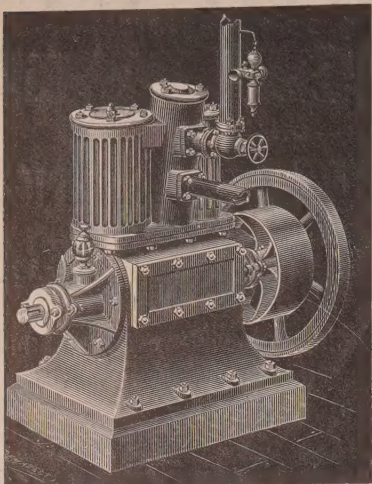
HAMILTON, OHIO, U. S. A.

Branch Office, No. 811 N. 2d St., St. Louis, Mo.

J. T. MOULTON. GEO. M. MOULTON.

J. T. MOULTON & SON, ARCHITECTS, CONTRACTORS AND BUILDERS

OF LARGE ELEVATORS,
OFFICE NO. 32 METROPOLITAN BLOCK,
CHICAGO, ILLINOIS.



The Westinghouse Automatic Engine.

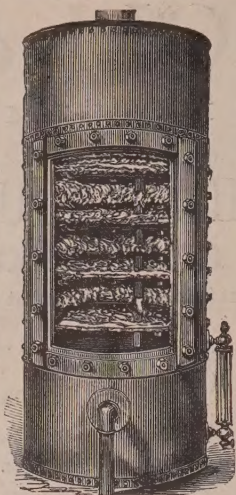
"Success is the Evidence of Superiority."

List of Sales for October, 1883.

Winona Wagon Co. Winona, Minn.	160 H.P.
Arthur's Coal and Lumber Co. Saw Mill, Hemlock, Pa.	125 "
Miller, Dubrul & Peters, Cincinnati, O.	80 "
Philadelphia & Reading Coal & Iron Co., Pottsville, Pa.	80 "
Philadelphia & Reading Coal & Iron Co., Pottsville, Pa.	65 "
Philadelphia & Reading Coal & Iron Co., Reading, Pa.	50 "
Philadelphia & Reading R. R. Co., Pottstown, Pa.	50 "
Arnoux Electric Light Co., Cleveland, O.	65 "
Arnoux Electric Light Co., Cleveland, O.	65 "
Brush-Swan Electric Light Co., Cheyenne, Wyo.	65 "
Pacific Rolling Mill Co., San Francisco, Cal.	65 "
C. R. Mabley, Electric Lighting, Detroit, Mich.	65 "
C. R. Mabley, Electric Lighting, Detroit, Mich.	8 "
New York & Brooklyn Electric Light Co., N. Y.	50 "
New York & Brooklyn Electric Light Co., N. Y.	50 "
New York & Brooklyn Electric Light Co., N. Y.	50 "
New York & Brooklyn Electric Light Co., N. Y.	50 "
Butte Electric Light Co., Butte, Mont.	50 "
Butte Electric Light Co., Butte, Mont.	50 "
Brush Electric Light & Power Co., Savannah, Ga.	50 "
Brush Electric Light & Power Co., Savannah, Ga.	50 "
Brush Electric Light Co., Buffalo, N. Y.	50 "
Decatur Electric Light Co., Decatur, Ill.	50 "
E. Stinson & Co., Wheel Factory, Baltimore, Md.	50 "
McKinney Mfg. Co., Machine Shop, Pittsburgh, Pa.	50 "
John Leggett, Laundry, Troy, N. Y.	40 "
Massey Mfg. Co., Machine Shop, Toronto, Can.	40 "
Geo. E. Nissen & Co., Wagon Factory, Salem, N. C.	40 "
P. H. Tiernan, Printer, Kansas City, Mo.	30 "
Eljah S. Pierce, Machine Shop, Mt. Carmel, Ct.	30 "
Westinghouse Air Brake Co., Pittsburgh, Pa.	30 "
Wm. Broadhead & Sons, Worsted Mills, Jamestown, N. Y.	30 "
Sharna & Davidson, Planing Mill, Portland, Ore.	30 "
The Westinghouse Co., Schenectady, N. Y.	30 "
R. R. Rouse Mfg. Co., Indianapolis, Ind.	30 "
Senghi Woolen Mills, Yokohama, Japan	20 "
Howard Iron Works, Buffalo, N. Y.	20 "
Farwell, Osman & Jackson, Minneapolis, Mo.	20 "
Rodd Bros. & Co. Sugar Refiners, N. Orleans, La.	12 "
A. C. Sprengs, Ginning, Charlotte, N. C.	12 "
Baldwin Locomotive Works, Philadelphia, Pa.	12 "
E. Urquhart, Oil Mill, Little Rock, Ark.	8 "
Thos. H. McCollin, Philadelphia, Pa.	8 "
Battle House, Electric Lighting, Mobile, Ala.	8 "
Newport Oil Co., Electric Lighting, Newport, Ark.	8 "
"Mobile Register," Mobile, Ala.	8 "
Steamer "Charles Merriam," Elec. Lt., Cairo, Ill.	4 "
Steamer "Minnetonka," Elec. Lt., Cairo, Ill.	4 "
H. S. Nichols & Co. Concentrating Works, Denver, Col.	4 "
F. Plumb, Streator, Ill.	4 "

Fifty Engines! Total Horse Power, 3,025 H. P.

The Westinghouse Machine Co., PITTSBURGH, PA.



STILWELL'S PATENT LIME EXTRACTING HEATER

AND FILTER COMBINED.

Is the only Lime Extracting Heater that will Prevent Scale in Steam Boilers, removing all Impurities from the water before it enters the Boiler.

THOROUGHLY TESTED. OVER 3,000 OF THEM IN DAILY USE.

This cut is a facsimile of the appearance of a No. 5 Heater at work on ordinary Lime Water, when the door was removed after the Heater had been running two weeks.

ILLUSTRATED CATALOGUE FREE!

A LARGE NUMBER OF MINES HAVE THEM IN SUCCESSFUL OPERATION

STILWELL & BIERCE MFG. CO.,

DAYTON,

OHIO, U. S. A.



Superior to all Others for SERVICE and ECONOMY.

Twice as Strong as Leather.

Any Length.

Send for Reduced List and Discounts. Over 2,000,000 feet sold during 1881.

NORDYKE & MARMON CO.,

Indianapolis, Ind.

THE SILVER CREEK

IMPROVED

CORN SHELDER

—AND—

CLEANER.

Capacity, 75 to 100 bushelled corn per hour. Runs very light; is CHEAP, simple and durable.

READ:

"It is simple in construction, and a perfect success."—*Elwell & Son, Cherry Valley, N. Y.* "We think your sheller a complete success."—*Davis & Co., Portage, Wis.* "The Sheller is a perfect machine."—*Fretz & Bro., Monitor, Ind.*

Send for circular, terms, and price. Address

ZENA IRISH, Silver Creek, Chaut. Co., N. Y.

PAYNE'S 10-Horse Spark-Arresting

Portable Engine has cut 10,000 ft. of Michigan Pine Boards in ten hours, burning slabs from the saw in eight foot lengths.



OUR 10-HORSE we Guarantee to furnish power to saw 8,000 feet of Hemlock boards in ten hours. OUR 15-HORSE will cut 10,000 ft. in same time.

Our Engines are GUARANTEED to furnish a horse-power on 1/4 less fuel and water than any other Engine not fitted with an automatic cut-off. If you want a Stationary or Portable Engine, Boiler, Circular Saw Mill, Shafting or Pulleys, either castor or Modar's Patent Wrought Iron Pulley, send for our ILLUSTRATED CATALOGUE, "No. 34," for Information and Prices.

B. W. PAYNE & SONS,

Corning, N. Y., Box 1448.

REMOVAL!

PHILIP BUEHNER

DEALER IN

ENGINES AND BOILERS,

HAS REMOVED TO

Fourth and Wacouta Streets, ST. PAUL, MINN.

T. L. CLARK,

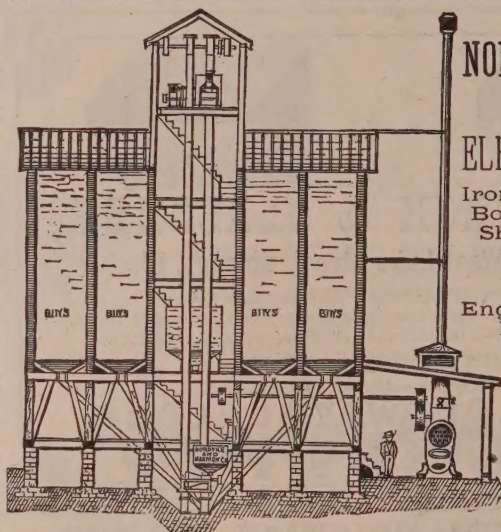
Patentee and Manufacturer of

IMPROVED STEAM SHOVELS,

For Unloading Grain from Cars,

MT. VERNON, OHIO.

ESTIMATES FURNISHED ON APPLICATION.



ESTABLISHED 1851.

NORDYKE & MARMON CO.

Indianapolis, Indiana,
Manufacturers of

ELEVATOR MACHINERY.

Iron and Wood Elevator Boots, Elevator Cups, Shellers, Portable Mills, Grain Cleaners, Grain Dumps and Scales, Engines, Boilers, Shafting, Pulleys and Belting.

Plans made to order, showing handiest and best arrangements for handling

GRAIN ECONOMICALLY!

Send for 160 page pamphlet.

Nordyke & Marmon Co.

INDIANAPOLIS, IND.

HUTCHISON'S

NEW IRON

DUSTLESS

Corn Sheller

Capacity 75 to 100 bushelled Shelled Corn per hour.

HUTCHISON'S

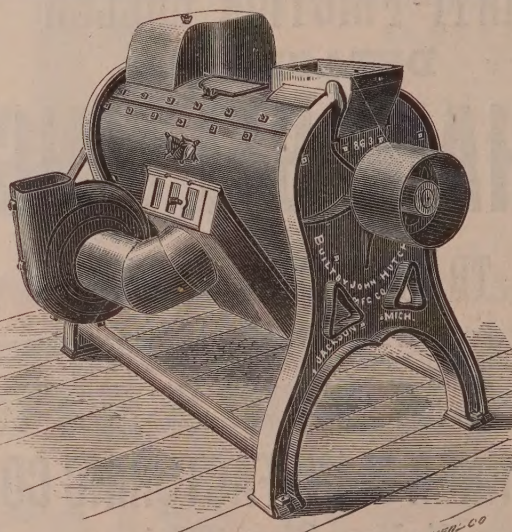
Millstone Feeder And Separator.

Send for Price Lists.

Address

John Hutchison Mfg. Co.

Jackson, Mich.

Send for
Catalogue
and
Prices.

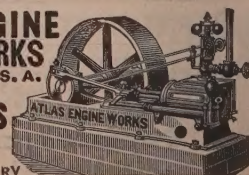
ATLAS ENGINE WORKS

INDIANAPOLIS, IND., U. S. A.

MANUFACTURERS OF

STEAM ENGINES
AND BOILERS.

CARRY ENGINES and BOILERS IN STOCK for IMMEDIATE DELIVERY



PERFORATED SHEET METALS



GRAIN-CLEANING MACHINERY,

Elevators, Warehouses, Flour and Rice Mills, Cotton and Linseed Oil Mills, Etc.; Iron and Zinc for Rolling Screens, Corn Screens, Grain Dryers, Perforated Floors, for Kilns, used in Drying Oats, Corn, Fruit, etc. Smut Mill Jackets of all kinds and sizes made to order. We will renew your Sieves for Oat Separators, Receiving Riddles, Corn Screens, etc., at short notice.

Samples and Prices on Application.

THE HARRINGTON & KING PERFORATING CO.,

BRANCH OFFICE

100 Beekman St., New York.

Nos. 43 to 51 South Jefferson St., CHICAGO.

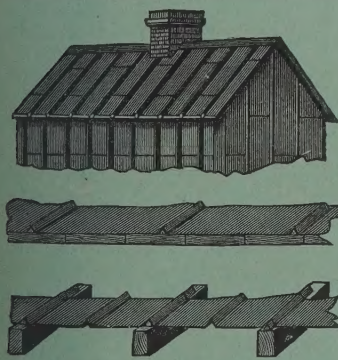
IRON
SHINGLES,
CORRUGATED,
DOUBLE CAP,
CRIMPED,
BEAD.

MOSER & THOMPSON,
—MANUFACTURERS OF—
**IRON ROOFING
SIDING!**

Corrugated Iron Siding for Grain Elevators a Specialty.

28-32 River St., Cleveland, O.

SEND FOR CIRCULAR AND PRICE LIST NO. 38.



The Largest Manufacturers
OF
SHEET IRON ROOFING

In the United States.

Can give the best of References in every State and Territory.

PORTER IRON ROOFING CO.,

101, 103 and 105 West Front Street,
CINCINNATI, O.

We also manufacture

All Kinds of Corrugated Iron.

SEND FOR ILLUSTRATED CATALOGUE.

IRON ROOFING AND SIDING.

—Crimped and Corrugated—

W. G. HYNDMAN & CO.

52 & 54 E. Second St.,

Cincinnati, O.

—FOR—

SAW MILLS,

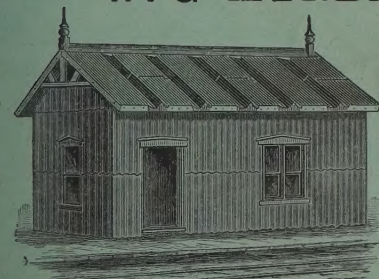
FACTORIES,

COTTON SHEDS,

DWELLINGS, Etc.

Send for Circulars and Prices.

Mention this Paper.



GARRY IRON ROOFING CO.,

The Largest Manufacturers of Iron Roofing in the World.

Manufacturers of
ALL KINDS OF

IRON ROOFING

AND

CRIMPED SIDING,

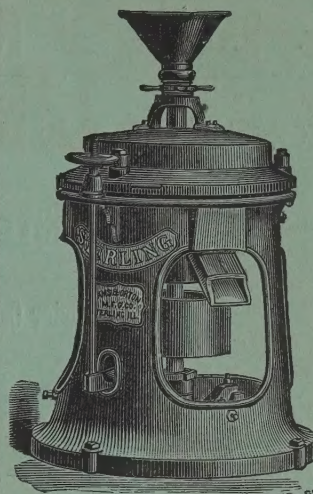
Fire-Proof Doors and
Shutters.



IRON ORE PAINT
And Cement.

152 Merwin Street,
CLEVELAND, OHIO.

Send for circulars and
Price List No. 79.



20-inch Underrunner.

Send for New Illustrated Price and
Pattern List.

WILLIAMS & ORTON

MANF'G CO.

400 Locust Street,
STERLING, ILL.

PORTABLE MILLS

PULLEYS,

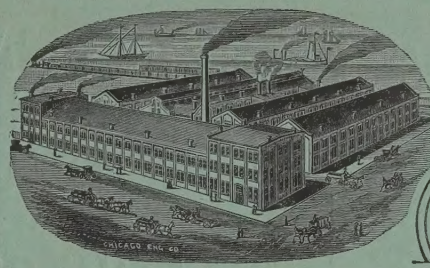
Shafting, Couplings, Hangers, Boxes, Etc.,

SHEAVES AND WIRE ROPE

For Transmission of Power.

If interested, send for "Illustrated Treatise
on Transmission of Power by
Wire Rope."

THE IMPROVED CUMMER AUTOMATIC ENGINE.



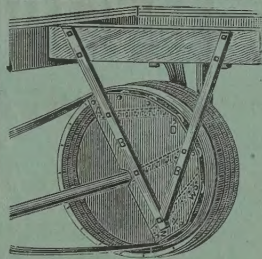
We build FIVE Classes of Engines.
No Steam-Engine Establishment
in the U. S. is as well equipped as
ours for doing first-class work.

Send for Catalogue No. 10. Please mention this paper.

THE CUMMER ENGINE CO., Cleveland, O.

Hill, Clarke & Co., Boston, Mass.,

Eastern Agents



THE WELLINGTON BELT HOLDER

HOLDS THE BELT AT REST

When the machine is not in use, and in position to be instantly
shifted back upon the driving pulley on line shaft at will.

No more wearing, rattling, heating loose pulleys. No more
waste of belts and power when machines are not in use. No more
danger shifting belts. **Simple, Durable, Cheap.** Agents
wanted. SEND FOR DESCRIPTIVE CIRCULAR.

W. R. SANTLEY & CO.,

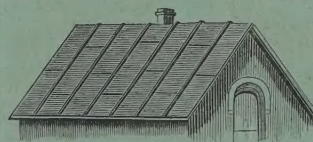
WELLINGTON, Lorain County, OHIO.

WM. WATSON, GRAIN ELEVATOR ARCHITECT AND BUILDER.

SEND FOR DESCRIPTIVE PAMPHLET.

177 LA SALLE STREET, CHICAGO.

HAMPSHIRE BLOCK.



Crowl's Pat. Iron Roofing.

CORRUGATED IRON SIDING

The only double capped Corrugated Roofing, and the only
one prepared by the manufacturers ready for laying.
CALAMINED IRON CEILING.
AGENTS WANTED EVERYWHERE.

CAMBRIDGE ROOFING CO.,
CAMBRIDGE, OHIO.

HARRIS-CORLISS ENGINE.

—BUILT BY—

WM. A. HARRIS, Providence, R. I.

Built under the Original patents until their expiration. Improvements since
added. "STOP MOTION ON REGULATOR" prevents engine running away:
"SELF-PACKING VALVE STEMS" (two patents) dispenses with four stuffing
boxes; "RECESSED VALVE SEATS" prevent the wearing of shoulders
on seats, and remedying a troublesome defect in other Corliss Engines;
"HARRIS & HARRIS PISTON PACKING" (two patents). "DRIP-COL-
LECTING DEVICES" (one patent.) Also in "General Construction" and
"Superior Workmanship."

The Best and most workmanlike form of the Corliss Engine now in the market, substantially built,
of the best materials, and in both condensing and non-condensing forms.

The Condensing Engine will save from 25 to 33 per cent. of fuel, or add a like amount to the power,
and consume no more fuel. Small parts are made in quantities, and interchangeable, and kept in
stock for the convenience of repairs, and to be placed on new work ordered at short notice.

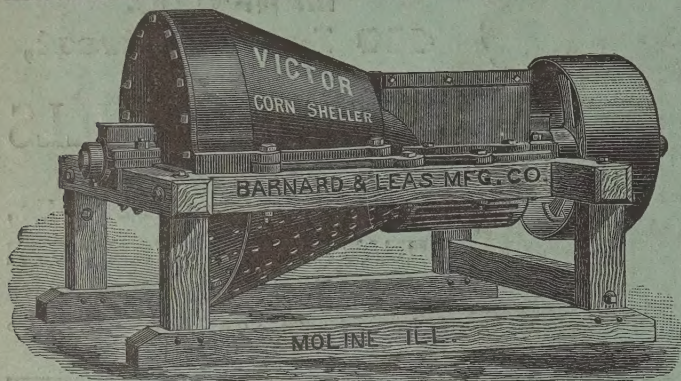
No other engine builder has authority to state that he can furnish this engine.
The only works where this engine can be obtained are at Providence, R. I., no outside parties be-
ing licensed.

WM. A. HARRIS, Prop'r.

BARNARD & LEAS MFG CO., Moline, Ill.,

MANUFACTURERS OF

Barnard's Dustless Warehouse Separator,



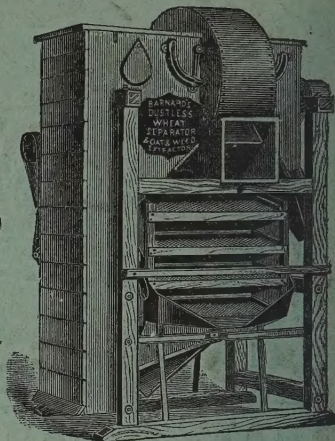
BARNARD'S DUSTLESS ELEVATOR SEPARATOR,

Duplex Separator and Grader,

Victor Corn Sheller, Barnard's Dustless Corn Cleaner,
Victor Lengthened Scourer.

*The Latest and Best Machines Made for Ware-
house Purposes.*

—:O:—
SEND FOR CIRCULARS.



THE LINK-BELT MACHINERY CO.

CHICAGO.

ALL SIZES OF

ELEVATOR BOOTS

IN IRON AND WOOD,

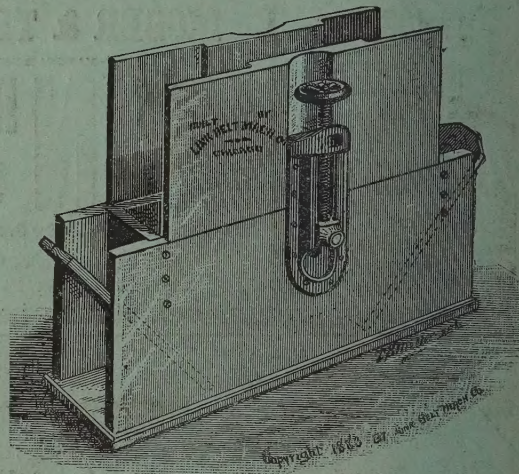
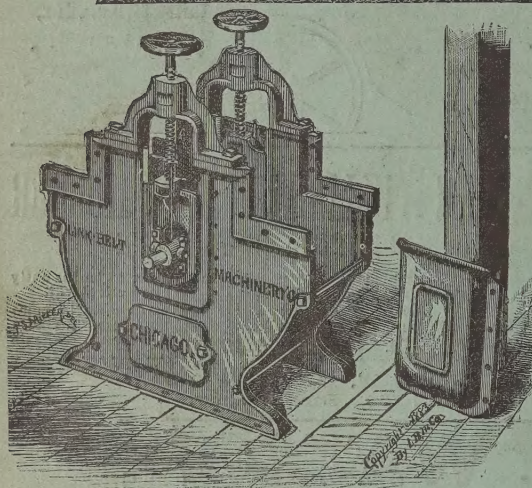
FOR

LINK BELTING

—OR—

FLAT BELTING,

CARRIED IN STOCK.



WEBSTER & COMSTOCK MANF'G CO.,

125 and 127 Ontario Street,

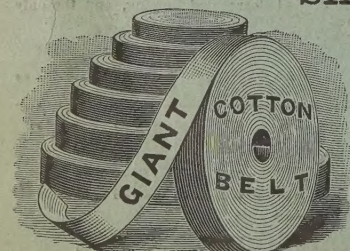
CHICAGO, - - - - - ILLINOIS.

MANUFACTURERS OF

The BACKBONE STEEL CONVEYOR,

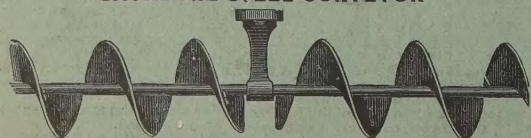
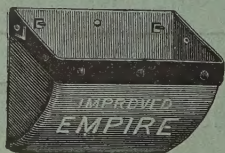
"EMPIRE" AND "COMMON SENSE" ELEVATOR BUCKETS.

STEEL SCOOP, COKER POWER GRAIN
SHOVEL.



BACKBONE STEEL CONVEYOR

THE EMPIRE BUCKET.



Patented March 3, 1883.

OUR GOODS ARE FOR SALE BY THE LEADING MILL FURNISHERS.

Write for New Catalogue.



Catalogues of Feed Mills, Wind Mills, Pumps,
Corn and Cotton Cultivators Free.
Sandwich Enterprise Co., Sandwich, Ill.

T. M. NAGLE,

ERIE, PA.,
Manufacturer of
Portable,
Stationary
and
Agricultural
Steam Engines.



GARDNER'S PATENT THREE-CYLINDER ENGINE,

The Most Simple and Durable

STEAM ENGINE

IN USE.

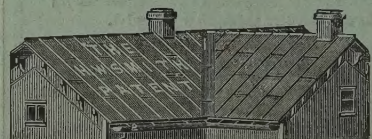
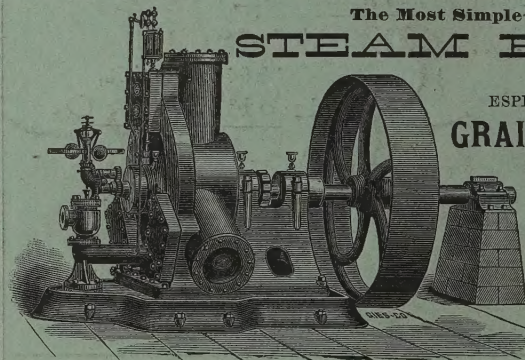
ESPECIALLY ADAPTED FOR

GRAIN ELEVATORS.

Dispensing with Shafting, Gear-
ing and Belts, drives Ele-
vator direct at head
of leg.

Over 1,500 Horse Pow-
er in use in differ-
ent Elevators.

Address, for Catalogue, etc.,
R. DUNBAR & SON,
Sole Manufacturers,
Buffalo, N. Y.



IRON ROOFING.

Cheapest and Best Plan in Use. Preferable to Corru-
gated. Suitable for Buildings of all kinds. Also
Calamine Iron (best thing for Gutters), and
Iron Ore Paint, Manufactured by

T. C. Snyder & Co.,
CANTON, OHIO.

Send for Circular and Price List. Sample Free.